

**U.S. Department of the Interior
Bureau of Land Management**

**Preliminary Environmental Assessment
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**Preliminary Environmental Assessment
for the Renewal of the
Southern Nevada Water Authority Grazing Permit
for the Cottonwood and Scotty Meadows Allotments**

Location: White Pine County and Lincoln County, Nevada

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Renewal of the Southern Nevada Water Authority Grazing Permit for the Cottonwood and Scotty Meadows Allotments

1.0 Introduction

This document identifies issues, analyzes alternatives, and discloses the potential environmental impacts associated with the Southern Nevada Water Authority (SNWA) grazing permit renewal for the Cottonwood and Scotty Meadows Allotments (Appendix 1, Maps 1 & 2). The allotments are situated in the east central portion of the Bureau of Land Management (BLM) Ely District, approximately 45-60 miles southeast of Ely, Nevada. The allotments occur within South Spring Valley Watershed in both White Pine and Lincoln Counties. The Cottonwood Allotment encompasses approximately 49,975 acres of public land and the Scotty Meadows Allotment encompasses 17,322 acres of public land.

1.1 Background

Monitoring data were reviewed and an assessment of the rangeland health of each allotment was completed in 2012 during the grazing permit renewal process through the Standards Determination Document (SDD) (Appendix 2).

The following is a summary of the SDD for achievement of the standards (Appendix 2).

Table 1. Summary of SDD Standards by Allotment for Achievement of the Resource Advisory Councils' Standards.

ALLOTMENT	STANDARD 1 Upland Sites	STANDARD 2 Riparian and Wetland Sites	STANDARD 3 Habitat
Cottonwood (00132)	Achieving the Standard	Achieving the Standard	Not achieving the Standard, but making significant progress toward achieving the Standard
Scotty Meadows (10128)	Achieving the Standard	Not achieving the Standard, and not making significant progress toward achieving the Standard	Not achieving the Standard, trend unknown

1.2 Purpose and Need

Purpose

The purpose of this proposal is to manage livestock grazing on public lands to provide for a level of grazing consistent with multiple use, sustained yield, and watershed function and health; to authorize grazing use in accordance with applicable laws, regulations, policies and land use plan; and to improve conditions on the allotments in order to meet or make significant progress towards achieving rangeland health as outlined in the Nevada Resource Advisory Councils' (RAC) Standards for the Mojave-Southern Great Basin Area (BLM, 2006) and Northeastern Great Basin Area (BLM, 1997). Furthermore, the purpose for this action is outlined by Section 3 of the Taylor Grazing Act of 1934, as amended, which states, in part, "The Secretary of the Interior is here by authorized to issue... permits to graze livestock..." and Section 402 of the Federal Land Management Policy Act of 1976, as amended.

Need

The need for the action is to meet or make significant progress towards achieving rangeland health standards. Not all rangeland health standards are being met based on the current SDD (Appendix 2). In addition, the current grazing permit requires an updated NEPA analysis to analyze the impacts of continued grazing in the Cottonwood and Scotty Meadows Allotments.

Decision to be made

The BLM will decide whether or not to issue a grazing permit with appropriate modifications to meet or make significant progress towards meeting the rangeland health standards.

1.3 Tiering

This grazing permit renewal is tiered to the Ely Proposed Resource Management Plan (RMP)/Final Environmental Impact Statement (EIS) (BLM, 2007). The Final EIS discloses general impacts to resources from livestock grazing on the Ely District.

1.3.1 Relationships to Other Plans

The proposed action is consistent with the following federal, state, and local plans to the maximum extent possible.

- Lincoln County Land Use Plan (1984)
- White Pine County Land Use Plan (2007).
- State Protocol Agreement between the Bureau of Land Management, Nevada, and the Nevada Historic Preservation Office (1999).
- White Pine County Portion (Lincoln/White Pine Planning Area) Sage Grouse Conservation Plan (2004).

1.4 Scoping, Public Involvement and Issues

The permit renewal proposal was initially scoped in January 2008 to the interdisciplinary team of resource specialist to identify any issues and/or resource concerns. Additionally, the proposal was posted to the Ely BLM website on November 11, 2008 for external scoping. The issues raised were the following:

- What are the impacts from grazing to the federally endangered Pahrump poolfish?
- Are there impacts to the protected Rocky Mountain Juniper on the Scotty Meadows Allotment?
- What are the impacts from grazing to the following sensitive species: Greater Sage-Grouse, relict dace, Parish phacelia, and northern leopard frog?
- Will there be impacts to the cultural sites?
- Will there be impacts to the Shoshone Ponds ACEC?

2.0 ALTERNATIVES

2.1 Design Features Common to All Action Alternatives

2.1.1. Invasive, Non-Native Species and Noxious Weeds

A Weed Risk Assessment was completed for this grazing permit renewal on January 2, 2013 (Appendix 3). This assessment concluded that there is a moderate risk for weed expansion from this project and the project can proceed with the inclusion of the following measures:

- Prior to entering public lands, the BLM will provide information regarding noxious weed management and identification to the permit holder affiliated with the project. The importance of preventing the spread of weeds to un-infested areas, and importance of controlling existing populations of weeds will be explained.
- The range specialist for the allotments will include weed detection into project compliance inspection activities. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- Hay, straw, or other organic products used for feed or bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely Field Office .
- Any newly established populations of noxious/invasive weeds discovered will be communicated to the Ely District Noxious and Invasive Weeds Coordinator for treatment.

2.1.2 Terms and Conditions Common to all Allotments that would be included in the Grazing Permit

1. Livestock numbers identified in the grazing permit are a function of seasons of use and permitted use for each allotment. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations are consistent with multiple-use objectives. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.
2. The authorized officer is requiring that an actual use report (form 4130-5) be submitted within 15 days after completing your annual grazing use.
3. Grazing use will be in accordance with the standards and guidelines for grazing administration. The standards and guidelines have been developed by the respective resource advisory council and approved by the Secretary of the Interior on February 12, 1997. Grazing use will also be in accordance with 43 CFR Subpart 4180 – Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.
4. If future monitoring data indicates that standards and guidelines for grazing administration are not being met, the permit will be reissued subject to revised terms and conditions.
5. The permittee must notify the authorized officer by telephone, with written confirmation, immediately upon discover of any hazardous or solid wastes as defined in 40 CFR Part 261.
6. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.
7. When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.
8. The placement of mineral or salt supplements will be a minimum distance of ½ mile from known water sources, riparian areas, winterfat dominated sites, sensitive sites, populations of sensitive species, and cultural resource sites. Mineral and salt supplements will also be one

mile from active Greater Sage-Grouse leks. Placing supplemental feed (i.e. hay, grain, pellets, etc.) on public lands without authorization is prohibited.

2.2 Proposed Action - Riparian Exclosure

Under the Proposed Action for the Cottonwood Allotment, permitted use for the native pastures would be based on a stocking rate of 30 acres per AUM. The North Native Pasture is approximately 13,500 acres. The South Native Pasture has approximately 17,000 acres of upland vegetation that is suitable for livestock grazing. The permitted use for the seeded pastures would be established at 308 AUMs per pasture. The period of use would be changed from 11/01 – 6/15 to 11/01 – 02/19 on the native pastures and to 02/20 – 05/31 on the seeded pastures (Table 2).

Adaptive management would be applied to the Cottonwood Allotment. The function of adaptive management is to allow flexibility in livestock numbers and period of use while not exceeding the permitted AUMs. The proposed action would allow up to 278 cattle for the period of use listed, but not to exceed the permitted AUMs.

The native pastures would be grazed under a deferred-rotation grazing system from 11/01 to 02/19, and the seeded pastures would be grazed under a rest-rotation grazing system from 02/20 to 05/31 (Table 3). Because one of the crested wheatgrass seedings would be rested each year, 308 AUMs would be placed into non-use annually.

Under the Proposed Action for the Scotty Meadows Allotment, the permitted use would remain the same as the current permit (Table 2). A new fence would be constructed in the allotment to exclude livestock grazing in and along the spring brook and wet meadow associated with Shoshone Well #2. The exclosure would be approximately 25 to 40 acres (Appendix 1, Map 4). The exact size of the exclosure would be determined during survey and design.

The grazing permit for SNWA would be changed as shown in Table 2, and issued for a period of ten years.

**Table 2. Grazing permit under the Proposed Action – Riparian Exclosure
FROM:**

Allotment	Livestock Number & Kind	Period of Use	% Public Land	Type of Use	Permitted Use (AUMs)
Cottonwood	250 Cattle	11/01 – 06/15	100	Active	1,865
Scotty Meadows	378 Cattle	06/01 – 09/30	81	Active	1,227

TO:

Allotment	Livestock Number & Kind	Period of Use	% Public Land	Type of Use	Permitted Use (AUMs)
Cottonwood					
North Native Pasture	278 Cattle	11/01 – 02/19	100	Adaptive [*]	450
South Native Pasture	278 Cattle	11/01 – 02/19	100	Adaptive [*]	566
Upper Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Middle Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Lower Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Deer Flat Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Scotty Meadows	378 Cattle	06/01 – 09/30	81	Active	1,227

^{*} Adaptive use means the operator is authorized to graze up to the number of cattle listed during the identified period of use, but not to exceed the total permitted AUMs for the each native pasture.

^{**} Adaptive use means the operator is authorized to graze up to the number of cattle listed during the identified period of use, but not to exceed the total permitted AUMs for each crested wheatgrass seeding scheduled to be grazed.

Table 3. Cottonwood Allotment Grazing System.

Pasture	Pasture Rotation
YEAR 1	
North Native	1 st
South Native	2 nd
Upper Seeding	4 th
Middle Seeding	5 th
Lower Seeding	3 rd
Deer Flat Seeding	Rest
YEAR 2	
North Native	2 nd
South Native	1 st
Upper Seeding	3 rd
Middle Seeding	4 th
Lower Seeding	Rest
Deer Flat Seeding	5 th
YEAR 3	
North Native	1 st
South Native	2 nd
Upper Seeding	Rest
Middle Seeding	3 rd
Lower Seeding	5 th
Deer Flat Seeding	4 th

Pasture	Pasture Rotation
YEAR 4	
North Native	2 nd
South Native	1 st
Upper Seeding	5 th
Middle Seeding	Rest
Lower Seeding	4 th
Deer Flat Seeding	3 rd
REPEAT STARTING WITH YEAR 1	

To improve livestock distribution in the North and South Native Pastures within the Cottonwood Allotment, temporary water hauling sites would be established along existing roads (Appendix 1, Map 3).

Other Terms and Conditions that would be included in the Grazing Permit:

1. Allowable use levels will be 45% of current year's growth for winterfat, 50% for native grasses, and 60% for crested wheatgrass.
2. When allowable use levels are met, livestock must be removed from the pasture/allotment within 5 days.
3. In the Cottonwood Allotment, temporary water hauling will be authorized along the existing dirt road within the northeast corner of the North Native Pasture and along the existing dirt road within the west portion of the South Native Pasture. Water haul sites will be moved at least a half mile every two weeks, and will be in accordance with Nevada state water laws.

2.3 Riparian Pasture Alternative

The Riparian Pasture Alternative for the Cottonwood Allotment would be the same as the Proposed Action.

Under the Riparian Pasture Alternative for the Scotty Meadows Allotment, number of cattle and AUMs would remain the same as the Proposed Action. This alternative proposes a new fence encompassing the Scotty Meadows and the associated artesian wells, and the stock pond creating a riparian pasture (approximately 450 acres) in the northern portion of the Shoshone Ponds ACEC. The new fence would create a three pasture grazing system with an East, West, and Riparian pasture (Appendix 1, Map 5). Table 4 below outlines the new proposed grazing schedule for the Scotty Meadows Allotment and would go into effect as soon as fences are installed.

The grazing permit for SNWA would be changed as shown in Table 4, and issued for a period of ten years.

**Table 4. Grazing Permit under the Riparian Pasture Alternative
FROM:**

Allotment	Livestock Number & Kind	Period of Use	% Public Land	Type of Use	Permitted Use (AUMs)
Cottonwood	250 Cattle	11/01 – 06/15	100	Active	1,865
Scotty Meadows	378 Cattle	06/01 – 09/30	81	Active	1,227

TO:

Allotment	Livestock Number & Kind	Period of Use	% Public Land	Type of Use	Permitted Use (AUMs)
Cottonwood					
North Native Pasture	278 Cattle	11/01 – 02/19	100	Adaptive [*]	450
South Native Pasture	278 Cattle	11/01 – 02/19	100	Adaptive [*]	566
Upper Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Middle Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Lower Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Deer Flat Seeding	278 Cattle	02/20 – 05/31	100	Adaptive ^{**}	308
Scotty Meadows					
Riparian Pasture	378 Cattle	06/01 – 06/15	81	Active	151
East Pasture	378 Cattle	06/16 – 07/15	81	Active	312
Riparian Pasture	378 Cattle	07/16 – 07/31	81	Active	161
West Pasture	378 Cattle	08/01 – 09/30	81	Active	614

^{*} Adaptive use means the operator is authorized to graze up to the number of cattle listed during the identified period of use, but not to exceed the total permitted AUMs for the each native pasture.

^{**} Adaptive use means the operator is authorized to graze up to the number of cattle listed during the identified period of use, but not to exceed the total permitted AUMs for each crested wheatgrass seeding scheduled to be grazed.

The “Other Terms and Conditions” listed under the proposed action would be applied to the Cottonwood and Scotty Meadows Allotments, with one additional term and condition for the Scotty Meadows Allotment:

- An average stubble height of 6 inches on riparian obligate species (i.e. sedges and rushes) will serve as a trigger for removing cattle from the riparian pasture before the period of use. If the average stubble height is met, cattle must be removed immediately.

2.4 Change Season of Use Alternative

The Change Season of Use Alternative would be the same as the Proposed Action for the Cottonwood Allotment.

This alternative proposes to change the season of use in the Scotty Meadows Allotment from summer grazing (6/1 – 9/30) to fall/winter grazing (10/1 – 3/15). This would prevent livestock from grazing the Scotty Meadows during the critical growing season.

The grazing permit for SNWA would be changed as shown in Table 5, and issued for a period of ten years.

Table 5. Grazing Permit under the Change Season of Use Alternative
FROM:

Allotment	Livestock Number & Kind	Period of Use	% Public Land	Type of Use	Permitted Use (AUMs)
Cottonwood	250 Cattle	11/01 – 06/15	100	Active	1,865
Scotty Meadows	378 Cattle	06/01 – 09/30	81	Active	1,227

TO:

Allotment	Livestock Number & Kind	Period of Use	% Public Land	Type of Use	Permitted Use (AUMs)
Cottonwood					
North Native Pasture	250 Cattle	11/01 – 02/19	100	Adaptive*	450
South Native Pasture	250 Cattle	11/01 – 02/19	100	Adaptive*	566
Upper Seeding	250 Cattle	02/20 – 05/31	100	Adaptive**	308
Middle Seeding	250 Cattle	02/20 – 05/31	100	Adaptive**	308
Lower Seeding	250 Cattle	02/20 – 05/31	100	Adaptive**	308
Deer Flat Seeding	250 Cattle	02/20 – 05/31	100	Adaptive**	308
Scotty Meadows	275 Cattle	10/01 – 03/15	81	Active	1,227

* Adaptive use means the operator is authorized to graze up to the number of cattle listed during the identified period of use, but not to exceed the total permitted AUMs for the each native pasture.

** Adaptive use means the operator is authorized to graze up to the number of cattle listed during the identified period of use, but not to exceed the total permitted AUMs for each crested wheatgrass seeding scheduled to be grazed.

The “Other Terms and Conditions” listed under the proposed action would be applied to the Cottonwood and Scotty Meadows Allotments.

2.5 No Action Alternative

The No Action Alternative represents the status quo; the grazing permit would be renewed without establishment of allowable use levels or modifications to the grazing permit terms and conditions. Under this alternative, no riparian protection fences would be constructed and the season of use would not change.

The grazing permit for SNWA would not be changed (Table 6), and issued for a period of ten years.

Table 6. Grazing Permit Under the No Action Alternative

Allotment	Livestock Number & Kind	Period of Use	% Public Land	Type of Use	Permitted Use (AUMs)
Cottonwood	250 Cattle	11/01 – 06/15	100	Active	1,865
Scotty Meadows	378 Cattle	06/01 – 09/30	81	Active	1,227

Other Terms and Conditions:

1. All grazing use on the Cottonwood Allotment will be in accordance with the Final Multiple Use Decision dated May 2, 1997.
2. Certified actual use reports by use area and pasture is due 15 days after the end of the authorized grazing period.
3. Livestock numbers identified in the grazing permit are a function of seasons of use and the total number of annual unit months of specified livestock grazing for each allotment. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.
4. In the Cottonwood Allotment, 386 AUMs will be placed into mandatory non-use each year, required for conservation and protection purposes, the average number of AUMs of the four

seeded pastures to cover one pasture being rested each year. The total number of animal unit months of specified livestock grazing should be used in lieu of “permitted use”.

5. Pursuant to 43 CFR 10.4(G) the holder of this authorization must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined in 43 CFR 10.2). Further, pursuant to 43 CFR 10.4 (C) and (D), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.
6. Water haul sites will be determined to improve livestock distribution; mineral block and/or salt block will be placed a minimum distance of ½ mile from water. Increased livestock movement by herding and water hauling will be addressed through consultation with the permittee during annual use authorization.
7. When livestock are moved out of a seeded pasture, gates will be closed.
8. Cottonwood Allotment (#00132) grazing use will be in accordance with the Mojave-Southern Great Basin Area Standards and Guidelines. Scotty Meadows Allotment (#10128) grazing use will be in accordance with the Northeastern Great Basin Area Standards and Guidelines. The aforementioned Great Basin Area Standards and Guidelines for grazing administration were developed by the respective Resource Advisory Council and were approved by the Secretary of the Interior on Feb 12, 1997.
9. Grazing use will also be in accordance with 43 CFR Subpart 4180 – Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.
10. Livestock numbers identified in the grazing permit are a function of seasons of use and permitted use for each allotment. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.
11. Deviations from specified grazing use dates will be allowed when consistent with multiple-use objectives. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.
12. The payment of your grazing fees is due on or before the date specified in the grazing bill. This date is generally the opening date of your allotment. If payment is not received within 15 days of the due date, you will be charged a late fee assessment of \$25 or 10 percent of the grazing bill, whichever is greater, not to exceed \$250. Payment with Visa, Mastercard or American Express is accepted. Failure to make payment within 30 days of the due date may result in trespass action.
13. If future monitoring data indicates that standards and guidelines for grazing management are not being met, the permit will be reissued subject to revised terms and conditions.

2.6 No Grazing Alternative

The SNWA grazing permit would be terminated and associated livestock grazing use on the Cottonwood and Scotty Meadows Allotments would be eliminated. Also see Alternative D throughout the Ely Proposed RMP/Final EIS (BLM, 2007).

3.0 AFFECTED ENVIRONMENT

Project Area Description

The project area is defined by the Cottonwood and Scotty Meadows allotment boundaries (Appendix 1, Maps 1 & 2). This area is typical of the Great Basin with elevations ranging from approximately 5,751 to 7,874 feet, with the average precipitation ranging between 5 to 16 inches.

In the Cottonwood Allotment, the Eagle Wild Horse Herd Management Area (HMA) comprises 21,807 acres and 8,702 acres is within the Fortification Range Wilderness Area. In the Scotty Meadows Allotment, the Shoshone Ponds Area of Critical Environmental Concern (ACEC) comprises 1,240 acres.

Resources/Concerns Considered for Analysis

The following items (Table 7) have been evaluated for potential impacts to occur, either directly, indirectly, or cumulatively, due to implementation of the proposed action. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal Actions. Other items are relevant to the management of public lands in general and to the Ely BLM in particular.

Table 7. Supplemental Authorities for Consideration and Rationale for Detailed Analysis or Rational for Elimination from Further Consideration.

Resource/Concern Considered	Issue (s) Analyzed (Y/N)	Rationale for Dismissal from Analysis or Issue (s) Requiring detailed analysis
Air Quality	No	Air Quality in White Pine County meets or exceeds federal air quality standards. Dust mobilized by livestock trailing would not be measureable and would not be expected to alter local or county-wide air quality.
Areas of Critical Environmental Concern (ACEC)	No	The Scotty Meadows Allotment includes approximately 1,240 acres of the Shoshone Ponds ACEC. Only a small component of the Shoshone Ponds ACEC is impacted and is discussed in the riparian/wetlands analysis.
Cultural Resources	Yes	Analyzed in EA.
Forest Health	No	Rocky Mountain junipers are contained within the Scotty Meadows Allotment. The livestock do not feed on the Rocky Mountain junipers, and therefore impact to forest health is negligible.
Native American Religious Concerns and other concerns	No	No concerns were identified through coordination letters sent on November 19, 2008. Direct impacts and cumulative impacts would not occur because there were no identified concerns through coordination.
Wastes, Hazardous or Solid	No	No hazardous or solid wastes exist in the allotments nor would be introduced by the proposed action.
Water Quality, Drinking/Ground	No	The proposed action would not affect the water quality of drinking or groundwater sources in the project area. None of the surface water in the projects area is used as

Resource/Concern Considered	Issue (s) Analyzed (Y/N)	Rationale for Dismissal from Analysis or Issue (s) Requiring detailed analysis
		human drinking water. The proposed action would not affect groundwater water quality nor affect how groundwater is used in the project area.
Wilderness	No	The Cottonwood Allotment includes approximately 8,702 acres or 17% of the Fortification Range Wilderness. The Kirkeby Pipeline is within the cherry stem of the Fortification Range Wilderness. No authorized range improvements are in this wilderness. Trammeling activities associated with livestock grazing are minimal since the livestock prefer grazing in the lower elevations, outside wilderness.
Environmental Justice	No	No minority or low-income groups would be disproportionately affected by health or environmental effects. Concern is not present.
Floodplains	No	No floodplains have been identified by FEMA within the proposed project area. Resource not present in analysis area.
Wetlands/Riparian Zones	Yes	Analyzed in EA.
Noxious and Invasive Weed Management	No	The proposed action includes stipulations from Weed Risk Assessment (Appendix 3) to prevent the spread of invasive and noxious weeds. No additional analysis is needed.
Fish and Wildlife	No	Effects from livestock grazing and fencing on fish and wildlife are analyzed on pages 4.6-10 through 11 and page 4.6-3 of the Proposed Resource Management Plan/Final Environmental Impact Statement (BLM, 2007). Site specific examination did not reveal any concerns above those addressed in the EIS.
Migratory Birds	No	Several species of migratory birds are known to have a distribution that overlaps with the project area. Long-term population trends of migratory birds would not be affected by proper livestock grazing management practices. The grazing management practices outlined in the proposed and alternative actions would minimize any potential for effects to migratory bird habitats.
Federally Listed or Proposed Threatened and Endangered Species	Yes	Analyzed in EA.
BLM Nevada Sensitive Wildlife Species	Yes	Analyzed in EA.
BLM Nevada Sensitive	No	A documented population of Parish's phacelia occurs within the Scotty Meadows Allotment. Effects from

Resource/Concern Considered	Issue (s) Analyzed (Y/N)	Rationale for Dismissal from Analysis or Issue (s) Requiring detailed analysis
Plant Species		livestock grazing on Sensitive Species are analyzed on page 4.7-1 of the Proposed Resource Management Plan/Final Environmental Impact Statement (BLM, 2007). No additional impacts to Parish's phacelia are expected and will not result in listing the species as threatened or endangered.
Wild Horses	No	The proposed action for the Cottonwood Allotment is within the Eagle Herd Management Area. Effects from livestock grazing on Wild Horses are analyzed on page 4.8-6 of the Proposed Resource Management Plan/Final Environmental Impact Statement (BLM, 2007). Site specific examination of the Cottonwood Allotment did not reveal any concerns above those addressed in the EIS. The Scotty Meadows Allotment is not within a HMA.
Soil Resources	Yes	Analyzed in EA.
Water Resources	No	Existing or pending water rights, water quantity from surface or groundwater sources, or potential future yield from water sources would not be affected.
Prime and Unique Farmlands	No	Resource not present.
VRM	No	The proposed action, including the installation of a riparian fence, is consistent with the VRM class III in the proposed action area. Further analysis is not necessary.
Lands with Wilderness Characteristics	No	One unit of LWC was identified in the 2012 inventory update which overlaps the northeast corner of the Cottonwood Allotment. There are no anticipated impacts to Size, Solitude or Primitive forms of Recreation from the proposed action or alternatives in this area.
Lands and Realty	No	No effect to lands or realty.
Wild and Scenic Rivers	No	There are no wild and scenic rivers within the allotments.
Lands Uses	No	There would be no modifications to land use authorizations through the proposed action therefore no effects would occur. Detailed analysis is not required.
Recreation Uses	No	Recreation use would not change based on the proposed action or alternatives.
Paleontological Resources	No	All known vertebrates, rare invertebrates and plant paleontological resource will be avoided. If any are discovered during the implementation of this project, all work in the vicinity will cease and the BLM Archaeologist/Paleontologist will be contacted

Resource/Concern Considered	Issue (s) Analyzed (Y/N)	Rationale for Dismissal from Analysis or Issue (s) Requiring detailed analysis
		immediately.
Mineral Resources	No	There would be no modifications to mineral resources through the proposed action or alternatives, therefore no direct, indirect, or cumulative impacts would occur to minerals.
Vegetative Resources	Yes	Analyzed in EA.

3.1 Cultural Resources

3.1.1 Affected Environment

In the Cottonwood Allotment, there are no culturally sensitive properties that would be affected by cattle grazing. No further consideration of Cultural Resources is required at this time.

In the Scotty Meadows Allotment, the proposed enclosure falls within an area of high sensitivity for cultural resource properties, the Shoshone Ponds Civilian Conservation Corps (CCC) Camp. There is no identification or site number for this CCC camp, but according to available data it was a side/spike camp of Indian Springs Camp (Camp #G-21, Company #2532). Due to the rapid formulation and implementation of CCC camps, many of the records were either lost in the mayhem or improperly maintained; therefore identifying the exact camp number is highly improbable. The area was inventoried to the standards of Section 110 in the fall of 2010 with a report and site forms pending. The BLM has determined that the Shoshone Ponds CCC Camp is eligible to the National Register of Historic Places (NRHP) with the associated swimming pool ruin as an eligible contributing element.

3.1.2 Environmental Effects

3.1.2.1 Proposed Action – Riparian Enclosure

The riparian enclosure would protect the swimming pool ruins of the Shoshone Ponds CCC Camp from livestock trampling; however other features of the CCC camp, outside the enclosure, would still be subject to livestock disturbance causing irreparable damage.

3.1.2.2 Riparian Pasture Alternative

The riparian pasture would encompass the Shoshone Ponds CCC Camp. Livestock would have access to site four weeks during their grazing season. Any cattle grazing inside the riparian fence would cause irreparable damage by animals walking on the entire Shoshone Ponds CCC Camp site.

3.1.2.3 Change Season of Use Alternative

Any cattle grazing during the fall/winter may cause irreparable damage to a feature of the Shoshone Ponds CCC Camp by animals walking on the swimming pool ruins.

3.1.2.4 No Action Alternative

The No Action Alternative leaves the Shoshone Ponds CCC Camp in its current condition of continued decay.

3.1.2.5 No Grazing Alternative

No additional damage to the Shoshone Ponds CCC Camp would occur with the removal of livestock.

3.2 Wetland and Riparian Zones

3.2.1 Affected Environment

Less than 10 acres of riparian areas are found in the Cottonwood Allotment. Roughly 4.5 acres of a lentic system along a draw below Cottonwood Spring consisting of willow/grass communities and the remainder being small lentic systems with a mixture of sedge, rush, and grass plant types associated with Cottonwood, Pine, Basin, and Cow Heaven Springs.

A total of about 126 acres of riparian zones on public land occur in the Scotty Meadows Allotment with 73 acres found inside the Shoshone Ponds ACEC. Riparian zones found in the allotment are either: 1) wet systems with perennially saturated soils; 2) moist systems with intermittently saturated soils; or 3) dry systems with ephemerally saturated soils.

Four artesian wells located in the Shoshone Ponds ACEC supply water to and support a meadow/riparian complex of about 55 acres. Approximately six acres of perennially saturated soil lies around the spring brook formed by Shoshone Well #2. About 22 acres is a moist meadow riparian system. The moist meadow is seasonally saturated usually following spring snow melt and seasonally higher flows from the Shoshone Wells #1 and #2. During periods of diminished artesian well flows and lower precipitation the meadow system dries to the point that surface soils are well aerated. The remaining 27 acres, associated with Shoshone Wells #4 and #5, are rarely saturated and typically dry at the surface since the wells provide the lowest quantities of water and are furthest from the riparian meadow system.

The saturated riparian system is dominated by dense mats of Nebraska sedge with several rush species intermixed. The seasonally or intermittently saturated riparian systems are dominated by Baltic rush and common spikerush intermixed with mesic grass species. The dry riparian systems are dominated by Baltic rush and mesic grass species.

Condition and health of riparian vegetation in the perennially and intermittently saturated areas shows over-utilization of plants by livestock. Plant growth prior to livestock turnout shows plant height to be around 18 inches and 12 inches for sedges and rushes, respectively. Post-grazing period stubble height for both sedges and rushes is about one inch. Use of riparian vegetation in the drier portions of the meadow is usually not as severe as the wetter locations but plant growth in the dry parts of the meadow are not as vigorous either.

The spring brook associated with Shoshone Well #2 flows for about 120 feet from the well and shows almost 100-percent bank alteration due to livestock grazing. Livestock impact the stream system by consuming bank stabilizing vegetation and causing physical damage by crossing the stream along the entire length of the spring brook. Hoof action displaces stream bank soil which leads to sedimentation with the result being a widening and shallowing of the stream system.

The livestock watering pond and its surrounding soil does not support a robust riparian vegetation community. A narrow band of rushes ring the pond with aquatic plant species established in the pond. A community of riparian vegetation (sedge and rush) occurs below the outlet pipe to the pond which is used heavily by livestock each grazing period. Vegetation around and below the livestock pond is used and trampled to the point that the rushes around the pond are denuded each year and the

sedges and rushes below the pond are used to the same level as in the saturated meadow around the spring brook.

The 71 acres of riparian zones not associated with the Shoshone Wells are a mixture of the wet, moist, and dry riparian systems. These riparian zones are a combination of naturally occurring springs in the southern portion of the allotment and water inputs from irrigation facilities on private land within and around the allotment.

3.2.2 Environmental Effects

3.2.2.1 Proposed Action – Riparian Exclosure

There would be no impacts to riparian resources on the Cottonwood Allotment.

The riparian area within the proposed exclosure fence would be directly affected by the year round exclusion of livestock grazing. Riparian vegetation inside the exclosure would not be grazed by livestock. Yearly plant growth would lead to establishment of dense, thick root masses of sedge and rush species in the meadow and along the spring brook.

Vegetation left undisturbed by livestock would be expected to grow and establish maximum potential leaf area by the end of spring and into the hot, dry period of the year. Less plant energy would be used to re-establish leaf area usually lost through livestock grazing. Plant energy would be funneled into root mass formation instead of re-growth in leaf area before the summer months. Taller more vigorous plants would be expected to help maintain cooler riparian soil temperatures through the summer by shading soil and water surfaces. Groundwater levels would be expected to remain nearer the surface longer due to a reduction of evaporative loss under the taller and denser vegetation cover.

Past grazing management practices left patches of exposed soil and resulted in sedge and rush communities grazed to about 1 inch in height during the summer and fall months. Riparian vegetation along the spring brook was reduced to the extent that trampling by livestock accounted for almost 100-percent streambank alteration which left bare, exposed soil. Exposed soil and reduced shading of the habitat permitted increased loss of moisture to the atmosphere and thus, a drying of the soils and contraction of the riparian habitat during the summer.

Livestock use in summer and early fall allowed livestock to remove vegetative cover right up to the time plants go dormant. Use through the summer whittles away the vegetative cover to the point that plants attempt to re-grow leaf area in the early fall when precipitation increases and temperatures begin to lower. By not allowing plants to maintain sufficient leaf area through the grazing period, plants begin to grow leaf area instead of storing energy in the root systems, as is typical in riparian vegetation communities; energy that would be needed to spur growth in the following springtime. Anecdotal evidence suggests that due to past management of the riparian resources produced a situation where sedge and rush communities in subsequent years were beginning to show less health and vigor, evidenced by shorter and less robust plant specimens.

The proposed action would be expected to allow riparian plants to store energy in root systems throughout the summer and fall months by maintaining sufficient leaf area to produce excess photosynthate. Therefore, it is expected that left undisturbed by livestock grazing the riparian community would establish robust mats of roots and store energy that could be used during periods of

unusual climatic conditions, like extended drought or periods of below average flow from Shoshone Well #2 and other groundwater sources.

The thin band of riparian vegetation around the livestock watering pond would continue to be used to the point of the site being devoid of riparian vegetation in short order following the initiation of the grazing period. Riparian vegetation below the outlet to the stock pond would also likely receive additional use with the expectation that vegetation would be used to the same point as currently occurs.

The spring brook would be expected to physically change as riparian vegetation becomes healthier and more vigorous on the surrounding streambanks. The spring brook would be expected to become narrower but deeper over the long-term.

3.2.2.2 Riparian Pasture Alternative

There would be no impacts to riparian resources on the Cottonwood Allotment.

In the Scotty Meadows Allotment, impacts to riparian resources from the construction of a pasture fence around the saturated soil portions of the meadow would be identical to those outlined for the proposed action. When livestock are grazing the East or West Pastures, the effects would be identical to the proposed action in terms of reduced use of riparian vegetation in the Riparian Pasture with resultant increase of plant growth, plant energy reserve storage, and streambank stabilizing vegetation.

As the grazing schedule rotates to the Riparian Pasture it is expected that effects to riparian resources would mimic those currently found in the Shoshone Ponds meadow area. Managing to a residual stubble height of six inches and removal of livestock could provide sufficient leaf area to allow riparian plants to produce enough photosynthate to store reserve energy going into the dormant winter season.

Past observations have indicated that only about 55 head of livestock have used the riparian meadow consistently each year. The livestock have reduced sedge and rush heights, in the saturated and moist portions of the meadow, from 12 to 18-inches to about one inch in approximately one week. By concentrating up to 378 cattle in the riparian pasture, it is expected that the six inch stubble height could be reached in very short order.

The intensity of use would be expected to increase due to confining livestock to a smaller area. The frequency of use would be during both opportunities for growth by the riparian vegetation. The duration of livestock use would change to an overall four week use period. Since all livestock would be placed in the confines of the small riparian pasture it is expected that the relationship of intensity, duration, and frequency changes in livestock use would result in greater disturbance to riparian vegetation.

Heavier early season use would likely denude vegetation to the same extent that is currently found in the pasture, but with the change being that no grazing in the riparian pasture would occur after July each year. Plant energy stored in root systems would be used in an attempt to re-establish leaf area during the hot and dry portion of the year prior to the dormant season. The risk to plants is the

expenditure of energy to re-establish leaf area in order to create photosynthate to store for the next year's growing season versus the time remaining in the year to produce the leaf area and create photosynthate.

3.2.2.3 Change Season of Use Alternative

There would be no impacts to riparian resources on the Cottonwood Allotment.

In the Scotty Meadows Allotment, changing the period of use to correspond with the typical vegetative dormant season would be expected to reduce impacts to riparian plants during the spring and fall growing season. Leaf area would not be reduced by livestock until following the typical period when annual plant reserve energy is stored in the root masses. Plant growth and energy storage would follow patterns associated with climate and landform as opposed to reacting to livestock use throughout the growing season.

Shifting the timing of grazing to the fall and winter would not change the effects that hoof action imparts upon riparian communities in the saturated portion of the meadow. The saturated soils are kept wet by warm water emanating from Shoshone Well #2. Water flows from the well at around 74 degree Fahrenheit and as such keeps the surrounding soil temperature near or above freezing. Hoof action from fall-winter grazing would result in impacts that mimic the existing conditions for streambank alteration. Riparian soils and vegetation would be trampled as livestock trail along and through the spring brook to access water and forage.

Riparian vegetation in the drier portions of the meadow would be expected to maintain plant leaf area throughout the growing season which would lead to sufficient energy storage for the succeeding year's plant growth. Riparian vegetation in the saturated portions of the meadow and along the spring brook would be expected to receive continued direct impacts from hoof action. The growth period for vegetation in the saturated areas may continue later into the fall than other areas of the meadow and as such may not be dormant during the period of use. Greener plants may lead livestock to disproportionately use the saturated soil and spring brook areas thus indirectly leading to plant energy deficiencies for the following years.

3.2.2.4 No Action Alternative

There would be no impacts to riparian resources on the Cottonwood Allotment.

In the Scotty Meadows Allotment, factors which caused the effects described in the Affected Environment would continue unabated. Animals are turned out in the northern portion of the allotment and move south to use the resources available. The riparian meadow was consistently grazed by a portion of the permitted livestock in the allotment from year to year. The remaining animals dispersed, typically further south, to seek forage. Annual disturbance to the spring brook and saturated soils and associated riparian vegetation would be expected to follow the same pattern of disturbance. Plant community energy reserves would continue reduce with the expected incremental decrease of riparian plant health and vigor over the long term. Direct disturbance from trampling would continue which would affect both spring brook physical and biological functions. Streambank alteration would be expected to continue which leads to annual erosion and soil deposition in the stream channel from hoof shearing of banks as well as physical destruction of riparian vegetation by hoof action.

3.2.2.5 No Grazing Alternative

No grazing of the allotments would permit riparian vegetation growth unfettered by livestock use. Residual plant leaf area would be related to annual production less any amount used by animals other than livestock. Annual stored energy reserves would be expected to be optimal for the year's plant biomass production given annual climate and landform. Streambank vegetation would provide protection from typical wind and precipitation events. The spring brook would be expected to physically change as riparian vegetation becomes healthier and more vigorous on the surrounding streambanks. The spring brook would be expected to become narrower but deeper over the long-term.

Other riparian systems in both allotments would be expected to develop healthier and more vigorous riparian plant communities with a lessening of physical and biological effects related to livestock presence and use.

3.3 Federally Listed or Proposed Threatened and Endangered Species

3.3.1 Affected Environment

In the Scotty Meadows Allotment, the federally endangered Pahrump poolfish currently inhabits the middle refugia pond, the spring brook from Shoshone Well #2, and the stock pond within the Shoshone Ponds ACEC. Pahrump poolfish have not inhabited the north pond since 2011, possibly due to reduced water level in the pond due to improperly functioning well valves. In 2012, the well valves were replaced and water level has increased, however fish have not been reintroduced into the north pond. Cattle are excluded from the fenced refugia ponds, but have access to the stock pond and artesian well spring brook.

Pahrump poolfish are hardy and fairly adaptable fish, with its ability to survive and reproduce at sites that are distinctly different from its native habitat; its ability to survive and reproduce at sites that vary widely in environmental characteristics; and its ability to rebound from severe population crashes caused by habitat alterations. Threats to this species include the introduction of non-native invasive species, failure or vandalism of wells that feed the ponds and spring brook, low genetic variation, and habitat alteration (USFWS, 2012).

Presently, Pahrump poolfish continue to persist at the stock pond and Shoshone Well #2 spring brook, both which are grazed by cattle. The Pahrump poolfish population in the middle pond is excluded from livestock grazing, however populations do not appear to be stable. This may be due to increases in aquatic vegetation and changes in dissolved oxygen and quantity. In 2012, encroaching vegetation was manually cleared from the Middle Pond, increasing the pond's surface area.

3.3.2 Environmental Effects

3.3.2.1 Proposed Action – Riparian Exclosure

Under the Proposed Action, livestock would continue to have access to the stock pond, but not to the spring brook due to the riparian exclosure. The stock pond may see increased use by cattle with the loss of water access at the spring brook. This may increase trampling and denuding of vegetation immediately adjacent to the stock pond and to the surrounding habitat. This extra use may increase the amount of bare ground, with the potential of increased sedimentation within the stock pond. Overtime the increased sedimentation could affect the Pahrump poolfish by changing water quality and quantity.

Due to the riparian exclosure, the Pahrump poolfish in the spring brook would be protected from direct grazing impacts. It is unknown how the population would react to the lack of grazing and increased vegetation within and surrounding the spring brook. The poolfish population in the spring brook would continue to be monitored by biologists.

3.3.2.2 Riparian Pasture Alternative

Under the Riparian Pasture Alternative, livestock would continue to have access to the stock pond and spring brook; however potential grazing in and around the stock pond and spring brook would be reduced from four months to four weeks. While this would reduce the amount of time cattle would be grazing in and around the Pahrump poolfish populations, it also would concentrate the same number of cows into a smaller area. This may increase the amount of trampling and bare ground in and around the spring brook and stock pond, potentially increasing sedimentation. Over time, increased sedimentation could affect the Pahrump poolfish by changing water quality and quantity.

3.3.2.3 Change Season of Use Alternative

Under Change Season of Use Alternative, grazing in the Scotty Meadows allotment would change from summer to fall/winter. Livestock would continue to have access to the stock pond and spring brook; however cattle may not be as concentrated near either water source due to the cooler temperatures and less water consumption. This may reduce the amount of time cattle would be grazing in and around the Pahrump poolfish populations.

3.3.2.4 No Action Alternative

Under the No Action Alternative, the current vegetative conditions in the Scotty Meadows allotment would remain the same and cattle would continue to have access to the stock pond and spring brook. Vegetation in and around the water sources would continue to be trampled and grazed; however Pahrump poolfish populations continue to persist under the current grazing management practices.

3.3.2.5 No Grazing Alternative

Under the No Grazing Alternative, no grazing would occur near the Pahrump poolfish populations. It is unknown how this would affect the populations considering the refugia pond populations, that are fenced from grazing, do not appear to be stable.

3.4 BLM Nevada Sensitive Wildlife Species

3.4.1 Affected Environment

Greater Sage-Grouse

The Greater Sage-Grouse is a high-profile sensitive species that has been determined by the US Fish and Wildlife Service to be warranted for listing as a threatened or endangered species but precluded due to higher priority species. It has been identified as an “umbrella” species by the Ely District BLM, and chosen to represent the habitat needs of the sagebrush obligate or sagebrush/woodland dependent guild (BLM, 2007; p. 4.7-10).

To protect Greater Sage-Grouse and their habitat and prevent the species from becoming listed under the ESA, the BLM Washington office has issued Instruction Memorandum (IM) No. 2012-43 (*Greater Sage-Grouse Interim Management Policies and Procedures*) regarding Greater Sage-Grouse management across its range. It provides direction to the BLM field offices on the interim management that is to be applied to proposed activities on BLM-administered lands that affect

Greater Sage-Grouse or its habitat. Additionally, the BLM Nevada Office has issued IM No. NV-2012-058 (*Revised Directions for Proposed Activities within Greater Sage-Grouse Habitat*) requiring the State Office to review and approve proposed projects within Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH). The Cottonwood and Scotty Meadow Allotments contain both PPH and PGH habitat (Appendix 1, Map 6).

There is one known active Greater Sage-Grouse lek within the Cottonwood Allotment. There are no known leks within the Scotty Meadows Allotment; however there are two active leks within three miles of the allotment boundary. Greater Sage-Grouse often nest in suitable habitat within three miles of a lek site.

The Greater Sage-Grouse guidelines presented in Connelly et al. (2000) provide assistance in determining the needs for nesting/breeding, brood-rearing, and winter habitat. These are only guidelines and may not adequately represent the site potential for Greater Sage-Grouse habitat in this area. The guidelines recommendation for breeding habitat consists of at least 15 percent herbaceous grass and forb component and sagebrush at least 15-25 percent vegetative cover. Brood rearing habitat should comprise at least 15 percent grass and forb cover and sagebrush 10-25 percent cover. Winter habitat should comprise 10-30 percent sagebrush cover, with minimum height of 25-35 cm.

On average, monitoring data within the Cottonwood and Scotty Meadows Allotments has shifted from reference condition to a shrub dominate community with a low to minimal herbaceous understory. For nesting habitat, recent research by US Geological Survey has determined that shrub cover greater than 40 percent is recommended to reduce predation from ravens (Coates and Delehanty, 2010). However, early brood-rearing habitat requires the herbaceous understory for survival of chicks.

Other Sensitive Species

There is potential pygmy rabbit habitat in both allotments, with one documented sighting in the Cottonwood Allotment. The northern leopard frog has been documented in the Shoshone Ponds meadow and refugia ponds of the Scotty Meadows Allotment. Ferruginous hawk nests have been documented in both allotments, in addition to sightings of short-eared owl and burrowing owls within the area. There is the potential for other sensitive passerines and raptors to be nesting in or near the allotments. Relict dace inhabits the south refugia pond in the Scotty Meadows Allotment which is fenced from grazing.

3.4.2 Environmental Effects

3.4.2.1 Proposed Action – Riparian Exclosure

Under the Proposed Action for the Cottonwood Allotment, water hauling in the North Native Pasture and the South Native Pasture may help distribute cattle throughout the allotment. Presently, we are not meeting Greater Sage-Grouse nesting and early brood-rearing habitat conditions in portions of the allotment and water hauling may improve vegetative conditions by allowing high use areas to rest. This may improve the herbaceous understory for Greater Sage-Grouse nesting and early brood-rearing in certain areas, as well as habitat for other sensitive species. Vegetation surrounding the water haul site would be trampled by concentrated livestock use, possibly altering Greater Sage-Grouse habitat for possible nesting and brood-rearing. Additionally, winter grazing in the South and North Native Pastures avoids grazing during the critical growing season; however winter grazing also reduces residual grasses that are needed for Greater Sage-Grouse nest concealment.

In the Scotty Meadows Allotment, the installation of a 25 to 40 acre riparian exclosure may improve breeding habitat for northern leopard frogs, and nesting and foraging habitat for a variety of sensitive birds and bats. While Greater Sage-Grouse are not currently known to use the Scotty Meadows riparian area, the recovery of riparian vegetation may encourage early and late brood-rearing use. Because no other changes are proposed for the Scotty Meadows Allotment, Greater Sage-Grouse nesting and early brood-rearing habitat on the benches are expected to remain the same with minimal herbaceous understory. This may indirectly effect adult reproduction, nest predation, and chick survivorship. No direct impacts are expected to the relict dace because it is fenced from grazing; however indirect impacts may occur from upland erosion causing sedimentation in the ponds. There is the potential for cattle to trample pygmy rabbit burrows, however the likelihood is minimal. The proposed action would not contribute to the need to list any Sensitive Species as threatened or endangered.

3.4.2.2 Riparian Pasture Alternative

Under the Riparian Pasture Alternative for the Cottonwood Allotment, impacts are the same as the Proposed Action.

The Riparian Pasture Alternative for the Scotty Meadows Allotment proposes a riparian pasture to create a three pasture grazing system, which may minimize cattle from over utilizing the riparian meadow during the summer and only grazing the riparian meadow four weeks. This grazing schedule may improve the riparian meadow habitat for potential Greater Sage-Grouse brood-rearing and nesting, breeding habitat for northern leopard frogs, and foraging and nesting habitat for sensitive birds, and foraging habitat for bats. The herbaceous understory is also expected to improve in the uplands providing needed concealment for nests as well as diet of forbs and insects for Greater Sage-Grouse and their chicks.

No direct impacts are expected to the relict dace because it is fenced from grazing. There may be direct mortality to Northern leopard frogs and eggs from livestock trampling. Indirect impacts to relict dace may occur from upland erosion causing sedimentation in the ponds. Indirect impacts to the Northern leopard frog may occur from alteration of habitat, reduction of vegetative cover with the potential of decreasing survivorship. There is the potential for livestock to trample pygmy rabbit burrows, however the likelihood is minimal. Changes to the permit renewal would aid in the future desired condition of habitat for pygmy rabbit, in addition to improving the habitat for raptor prey species such as reptiles and rodents. The Riparian Pasture Alternative would not contribute to the need to list any Sensitive Species as threatened or endangered.

3.4.2.3 Change Season of Use Alternative

Under the Change Season of Use Alternative for the Cottonwood Allotment, impacts are the same as the Proposed Action.

The Change Season of Use Alternative for the Scotty Meadows Allotment proposes to change the season of use from summer grazing to fall/winter grazing. This may improve Greater Sage-Grouse habitat by allowing the grasses and forbs to re-seed and increase in quantity throughout the allotment. The riparian area at Scotty Meadows may also improve with no grazing during the critical growing season, improving habitat for all sensitive species. With grazing changed to fall and winter, breeding northern leopard frogs would not be disturbed or harmed.

No direct impacts are expected to the relict dace because it is fenced from grazing. Indirect impacts may occur from upland erosion causing sedimentation in the ponds. There is the potential for livestock to trample pygmy rabbit burrows, however the likelihood is minimal. Changes to the permit renewal would aid in the future desired condition of habitat for pygmy rabbit, in addition to improving the habitat for raptor prey species such as reptiles and rodents. The Change Season of Use Alternative would not contribute to the need to list any Sensitive Species as threatened or endangered.

3.4.2.4 No Action Alternative

Under the No Action alternative, the current vegetative conditions in the allotments would continue to decline with inadequate grass and forb cover for Greater Sage-Grouse and other sensitive species. Herbaceous cover is needed to provide concealment for Greater Sage-Grouse nests, as well as providing a diet of forbs and insects for Greater Sage-Grouse and their chicks. Presently, the allotments only partially meet the habitat requirements for Greater Sage-Grouse.

There is the potential for livestock to trample pygmy rabbit burrows, however the likelihood is minimal. Habitat for pygmy rabbits, northern leopard frog, sensitive bats, birds, and raptors would continue to degrade under the No Action alternative. No direct impacts are expected to the relict dace because it is fenced from grazing. Indirect impacts may occur from upland erosion causing sedimentation in the ponds.

3.4.2.5 No Grazing Alternative

Under the No Grazing Alternative for the Cottonwood and Scotty Meadows Allotments, habitat for sensitive species would improve over time with the removal of grazing. Grasses and forbs would improve in overall vigor and quantity throughout the allotments which is important for sensitive species' breeding, nesting, and foraging.

3.5 Vegetation Resources

3.5.1 Affected Environment

The Cottonwood and Scotty Meadows Allotments are located within the Mojave-Southern Great Basin Area and Northeastern Great Basin Area respectively. An assessment of rangeland health was completed in 2012 (Appendix 2). The assessment determined the achievement of standards for rangeland health and identified whether or not livestock grazing was a contributing factor to not meeting the standards. Table 1 of this document shows the summary of SDD standards by allotment. For the Cottonwood Allotment, Standard 1-Upland Sites is being achieved. Standard 2-Riparian and Wetland Sites is being achieved. Standard 3-Habitat is not being achieved, but is making significant progress towards achievement. Current livestock grazing has not been identified as a contributing factor. The SDD provides recommendations to continue livestock grazing to meet or make significant progress towards the achievement of the standards. For the Scotty Meadows Allotment, Standard 1-Upland Sites is being achieved. Standard 2-Riparian and Wetland Sites is not being achieved and is not making significant progress toward meeting the standard. Current livestock grazing has been identified as a contributing factor to not meeting the standard. Standard 3-Habitat is not being achieved with an unknown trend. Current livestock grazing is not a contributing factor to not meeting the standard. The SDD provides recommendations to continue livestock grazing to meet or make significant progress towards achieving the standards.

3.5.2 Environmental Effects

3.5.2.1 Proposed Action – Riparian Enclosure

Grazing on the Cottonwood Allotment would follow a deferred rotation grazing system for the native pastures and a rest-rotation grazing system in the seeded pastures (Table 3). Deferring grazing until after the growing season on both native pastures would allow perennial grasses and forbs to reproduce and establish a healthy root system. Rest-rotation grazing allows one of the seeded pastures to be rested each year to improve plant vigor and allow for seed production.

Authorizing temporary water hauls in the North and South Native pastures would improve livestock distribution by providing water sources to promote grazing on the benches. The areas surrounding the permanent water sources currently receive higher utilization, and plants are continually overgrazed. Temporary water hauls would draw livestock away from the permanent water sources and up onto the benches. This would relieve grazing pressure and improve vigor on vegetation near the permanent water sources in the middle of the allotment.

On the Scotty Meadows Allotment, grazing use on upland vegetation would be expected to increase due to livestock being excluded from the wet meadow under the proposed action. This increase in use would probably be unmeasurable because the enclosure would only be 25 – 40 acres.

The proposed action establishes allowable use levels for both allotments. Removing livestock before allowable use levels are exceeded would allow desirable key species to retain above ground biomass. Vegetation would be able to continue photosynthetic processes, and develop roots to improve carbohydrate storage. In addition, plant vigor, reproduction, and cover would improve.

3.5.2.2 Riparian Pasture Alternative

Impacts to upland vegetation on both allotments would be the same as the Proposed Action.

Impacts to riparian vegetation on the Scotty Meadows Allotment are discussed in Section 3.2.2.2 on page 15.

3.5.2.3 Change Season of Use Alternative

For the Cottonwood Allotment, impacts to vegetation resources would be the same as the Proposed Action.

Changing the season of use for the Scotty Meadows Allotment from summer/early fall (06/01 - 09/30) to late fall/winter (10/01 - 03/15) would provide growing season rest for all vegetation. Grazing would only occur in the late fall/winter after the plants have produced seeds which would increase herbaceous vegetation throughout the allotment. This growing season rest would allow perennial grasses and forbs to continue photosynthetic processes, and develop roots to improve carbohydrate storage. In addition, plant vigor, reproduction, and cover would improve.

3.5.2.4 No Action Alternative

Improvement to vegetation resources on the Cottonwood Allotment would not occur to the degree that they would under the proposed action because grazing systems would not be implemented and

allowable use levels would not be established. Improper livestock distribution would continue on the native pastures because temporary water hauling would not be authorized.

Improvement to riparian vegetation on the Scotty Meadows Allotment would not occur because livestock would continue to graze the wet meadow the entire time they are authorized to be on the allotment. Impacts to upland vegetation would be the same as the proposed action.

3.5.2.5 No Grazing Alternative

Impacts to vegetation resources including trampling and removal of vegetation by livestock would not occur. Improvement to perennial grasses and forbs identified under the proposed action would occur sooner because they would not be grazed by livestock. Perennial grasses and forbs would be allowed to reproduce which would improve cover and composition.

3.6 Soil Resources

3.6.1 Affected Environment

Soil in the Cottonwood Allotment ranges in surface texture loams from fine (very fine sandy loam) to very cobbly loam). Soils in the valley bottom are very fine sandy loam and derived from lacustrine and alluvial deposits. Soils in the upper reaches of the allotment where riparian areas are found are fairly coarse in nature; very cobbly loam and gravelly coarse sandy loam derived from colluvium. The riparian soils are susceptible to displacement, compaction, and erosion.

The entire meadow encompassing the Shoshone Ponds ACEC well system is located in an area that was a dry saline meadow prior to the drilling of artesian wells in the 1930s and the introduction of water to the meadow. The surface soil texture throughout the meadow is silty clay which tends to retard the vertical movement of water through the soil profile. The remainder of the Scotty Meadows Allotment consists of soils with surface textures that range from fine loams (silt loam) to coarse loams (gravelly sandy loam).

Riparian resources are found predominantly in the silty clay soil types but a small riparian system in the south portion of the allotment is found in an area with silt loam textures. Silty clay soils are moderately susceptible to soil displacement and erosion while silty loam soils are very susceptible when dry. Both soil types have increased risk of displacement and compaction as soil moisture content increases.

Soils in the saturated and moist areas of the riparian meadow associated with the artesian wells show annual pugging and displacement due to livestock hoof action. Saturated soil areas around and along the spring brook show almost 100-percent streambank alteration and associated bank shearing. Displaced streambank soils are deposited into the spring brook. Annual displacement of soils due to hoof action exists around the spring brook which results in the brook becoming wider and shallower. Pugging of soil, up to 10-inches in places, due to livestock trampling occurs in the wet and moist meadow and below the outlet to the stock pond. Trampling removes vegetation and exposes bare soil. Soil around the livestock pond are compacted and sparsely populated by vegetation prior to grazing.

3.6.2 Environmental Effects

3.6.2.1 Proposed Action – Riparian Exclosure

The riparian exclosure would prevent the annual recurrence of compaction and displacement due to livestock trampling. Precluding livestock use of the saturated soil portion of the riparian meadow would eliminate streambank trampling by livestock which directly adds sediment to the spring brook. Riparian soils given a rest over an extended period of time would be expected to stabilize as evidenced through a slow recovery from the pugging and displacement of soil material. Annual cycles of water table fluctuations without recurring impacts of trampling would lead to the recovery from pugging and the infill of exposed soil with riparian vegetation.

Livestock trailing adjacent to the proposed fence may occur until such time livestock learn to avoid the fenced area. Trailing and trampling the area immediately surrounding moist meadow may result in increased pugging, compaction, and displacement during times of higher than normal precipitation when the soils are ephemerally saturated.

Soil around the livestock watering pond may see use from a greater number of livestock. More use may mean increased displacement of soil as livestock shuffle around the pond. No increase to soil compaction of dry soil around the pond is expected since the soil is already in a highly compacted state. Soil atop the small dam and below the outlet may receive added trampling. Soil below the pond would be expected to receive about the same level of trampling and pugging that occurs currently. Soil atop the dam may receive enough additional use that soil displacement and trampling may accelerate the need for maintenance work on the dam.

Soil condition throughout the remainder of the Scotty Meadows Allotment and the entire Cottonwood Allotment is not expected to change. Livestock trailing use patterns would not be altered and as such no additional soil effects are anticipated.

3.6.2.2 Riparian Pasture Alternative

Compaction, displacement, and pugging effects to the saturated and moist portion of the riparian meadow are expected to increase. A higher number of livestock would be placed in the pasture than numbers which apparently use the riparian system currently. The natural expectation is that nearly the entire complement of livestock would use the riparian vegetation as forage prior to less favored upland plant species. The resultant expectation would be to have nearly 100-percent of the livestock using the wet and moist riparian system at the same time and thus attaining the trigger point for removal of livestock in short order following turn out. The intensity of use would be expected to increase due to confining livestock to a smaller area. The frequency of use would be during both opportunities for growth by the riparian vegetation. The duration of livestock use would change to an overall four week use period. Since all livestock would be placed in the confines of the small riparian pasture it is expected that the relationship of intensity, duration, and frequency changes in livestock use would result in greater disturbance to soil resources.

There is a high risk that trampling, pugging, exposure of bare soil, and displacement would increase in the wet and moist meadow areas. Presently about 55 head of livestock surpass the proposed vegetation use trigger in about one week. It is expected up to 378 head of livestock could be permitted to use the pasture for two weeks in the spring growing season and two weeks in the summer, or twice a grazing season. A greater number of livestock could be permitted to use the

pasture for a correspondingly shorter period of time. The overall effects would be to increase the direct impacts due to livestock trampling and the indirect impacts that result from loss of vegetation.

Areas in and around the stock watering pond would see a corresponding increase in animal use. Compaction around the pond is not expected to increase but the probability of increased displacement of soil around the pond, atop the dam, and below the outlet pipe is high.

Soil condition throughout the remainder of the Scotty Meadows Allotment and the entire Cottonwood Allotment is not expected to change. Livestock trailing use patterns would not be altered and as such no additional soil effects are anticipated.

3.6.2.3 Change Season of Use Alternative

Impacts to soil resources would be pushed back until fall and winter. The saturated soils in the riparian meadow and along the spring brook typically do not freeze due to warm water input from Shoshone Well #2. As such, livestock trampling would begin in October and potentially continue through March. The effects to the saturated and wet portions of the meadow system would be compaction, displacement, pugging at the frequency and intensity that currently occurs.

3.6.2.4 No Action Alternative

The exclosure fence in the Scotty Meadows Allotment and the changes to grazing management in the Cottonwood Allotment would not be put into effect. Effects to upland, riparian, and streamside soil resources would not change. Livestock trailing and trampling would continue to compact and displace soils in both allotments at the level presently encountered.

3.6.2.5 No Grazing Alternative

By not issuing a grazing permit for the Cottonwood and Scotty Meadows Allotments the continuous livestock effects to all soil resources would cease. Changes to soils within the saturated portions of the Scotty Meadows allotment would mimic those described in the Riparian Exclosure Alternative. Changes to the riparian meadow as a whole would be expected to follow those described in the Riparian Pasture Alternative during the times when no grazing was proposed within the riparian pasture.

Expectations for all other areas of the Cottonwood and Scotty Meadows Allotments would have the eliminations of additional impacts to resources due to livestock. Soil recovery of existing compaction by livestock would occur slowly in areas with lower soil moisture content while moist or saturated soil would rebound relatively quickly. Rate of soil recovery from past compaction would be dependent upon precipitation, freeze/thaw cycles, and other episodic events which could change soil structure in heavily affected areas.

Areas in both allotments which exhibit soil displacement due to livestock trampling and trailing would recover quickly in places where the amount of soil loss or movement is minor due to environmental factors like the two mentioned above but also from natural and expected fine soil redistribution from wind movement of fine soil particles. Areas with a higher degree or greater volume of soil loss or displacement would recover more slowly.

4.0 Cumulative Effects

According to the 1994 BLM publication (attached to WO-IB-94-310) “Guidelines for Assessing and Documenting Cumulative Impacts,” the cumulative analysis can be focused on those issues and resource values identified by management, the public and others during scoping that are of major importance.”

Additionally, the guidance provided in The National BLM NEPA Handbook H-1790-1 (2008), for analyzing cumulative effects issues states, “determine which of the issues identified for analysis may involve a cumulative effect with other past, present, or reasonably foreseeable future actions. “If the proposed action and alternatives would have no direct or indirect effects on a resource, you do not need a cumulative effects analysis on that resource” (p.57). Also, a comprehensive cumulative impacts analysis can be found in section 4.28 of the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (BLM, 2007).

For the purpose of this analysis, the Cumulative Effects Study Area (CESA) for cultural resources, wetland/riparian zone, soil resources, and vegetation resources is the Cottonwood and Scotty Meadows Allotments (Appendix 1, Map 7). The CESA for Pahrump poolfish, Greater Sage-Grouse, and northern leopard frog is identified in Table 8 and spatially displayed in Appendix 1, Map 7. The timeframe for the cumulative effects analysis is the ten-year term of the grazing permit.

Table 8. Cumulative Effects Study Areas for the Grazing Permit Renewal for the Cottonwood and Scotty Meadows Allotments.

Resource Concerns/Issue	CESA	Justification
Pahrump poolfish	Shoshone Ponds ACEC	This project could potentially affect Pahrump poolfish populations within the Scotty Meadows Allotment. The Pahrump poolfish inhabit the stock pond, middle refugia pond, and the spring brook from Shoshone Well #2.
Greater Sage-Grouse	South Spring Valley and Mid Spring Valley Watersheds	This project could potentially affect greater Greater Sage-Grouse across South Spring Valley and Mid Spring Valley Watersheds to accommodate seasonal habitat movements.
Northern leopard frog	Lower elevations of South Spring Valley and Mid Spring Valley Watersheds	This project could potentially affect northern leopard frogs in the lower elevations of South Spring and Mid Spring Valleys to accommodate dispersal between riparian areas.

4.1 Timeframe for Analysis

The timeframe for this cumulative effects analysis encompasses past, present, and reasonably foreseeable future actions (RFFA) (Table 9) in the CESAs that may extend 10 years for the time frame of this environmental assessment.

Table 9. Past, Present, and Reasonably Foreseeable Future Actions in the CESAs.

Interrelated Projects or Actions	Cultural Resources	Wetlands/Riparian Zones	Federally Listed or Proposed Threatened and Endangered Species	BLM Nevada Sensitive Wildlife Species	Soil Resources	Vegetative Resources
Past Actions						
Eagle HMA Wild Horse Gathers		X		X	X	X
Greater Sage-Grouse Habitat Restoration Project				X	X	X
Wildland Fires		X		X	X	X
Spread of Noxious and Invasive Weeds		X	X	X	X	X
Grazing	X	X	X	X	X	X
Drought		X	X	X	X	X
Active Material Pits				X	X	X
Hogum Mining District				X	X	X
Present Actions						
Spring Valley Wind				X	X	X
Hogum Mining District				X	X	X
Active Material Pits				X	X	X
Spread of Noxious and Invasive Weeds		X	X	X	X	X
Treatment of Noxious and Invasive Weeds		X	X	X	X	X
Grazing	X	X	X	X	X	X
Drought		X	X	X	X	X
Reasonable Foreseeable Future Actions						
Eagle HMA Wild Horse Gathers		X		X	X	X
SNWA Groundwater Withdrawal (pipeline ROW and associated power line)		X	X	X	X	X
Grazing	X	X	X	X	X	X
Drought		X	X	X	X	X
South Spring Valley Vegetation Treatments		X		X	X	X
Active Material Pits				X	X	X
Treatment of Noxious and Invasive Weeds			X	X	X	X
Wildland Fires		X		X	X	X

4.2 Narrative of the Potential Impacts

4.2.1 Cultural Resources

The cumulative impacts for the cultural resource site of Shoshone Ponds CCC camp are cattle grazing and natural processes. The proposed enclosure fence would safeguard the associated historic swimming pool but the impacts from cattle grazing outside the enclosure fence would result in the eventual degradation of cultural resources. Due to distance from other RFFAs, no cumulative impacts are expected from this grazing permit renewal.

4.2.2 Wetland/Riparian Zones

The scope and range of effects to riparian resources from past, present, and reasonably foreseeable future actions in Spring Valley, Nevada were described in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012; section 3.3.3). The expected cumulative effects resources from the proposed action or alternatives were reasonably and adequately analyzed in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012), no other cumulative impacts are anticipated.

4.2.3 Federally Listed or Proposed Threatened and Endangered Species

The scope and range of effects to Pahrump poolfish from past, present, and reasonably foreseeable future actions in Spring Valley, Nevada were described in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012; section 3.7.3). The expected cumulative effects resources from the proposed action or alternatives were reasonably and adequately analyzed in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012), no other cumulative impacts are anticipated.

4.2.4 BLM Nevada Sensitive Wildlife Species

Greater Sage-Grouse

The cumulative impact area for the Greater Sage-Grouse consists of the Mid Valley Watershed and South Spring Valley Watershed. Impacts from grazing include temporary reduction of herbaceous understory for nesting and early brood-rearing habitat. Improving grazing management practices with this grazing permit renewal is expected to improve the herbaceous understory. Cumulative impacts to Greater Sage-Grouse have been analyzed in the Ely Proposed RMP/Final EIS (BLM, 2007). The proposed ground water pipeline and associated powerline would pass through South Spring Valley and the southern end of Mid Spring Valley. There would be a temporary and permanent loss of Greater Sage-Grouse habitat associated with the installation of pipeline and powerlines. The powerline may additionally cause avoidance behavior by Greater Sage-Grouse, as well as the loss of usable habitat within a certain distance of the powerline. The Cottonwood Allotment has one active lek that is also located approximately 0.25 miles from the proposed ROW. It is possible this lek would be abandoned by Greater Sage-Grouse once the pipeline and powerline are installed. Cumulative impacts of livestock grazing and other past, present and RFFA to Greater Sage-Grouse were reasonably and adequately analyzed in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012), no other cumulative impacts are anticipated.

Northern Leopard Frog

The cumulative impact area for the northern leopard frog consists of the lower elevations of Mid and South Spring Valley. The proposed action and alternatives could alter habit and reduce vegetative cover potentially decreasing survivorship. There would be no direct loss of northern leopard frog habitat associated with the groundwater pipeline due to the avoidance of springs (BLM, 2012).

The scope and range of effects to springs from past, present, and reasonably foreseeable future actions in Spring Valley, Nevada were described in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012; section 3.7.3). The expected cumulative effects resources from the proposed action or alternatives were reasonably and adequately analyzed in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012), no other cumulative impacts are anticipated.

4.2.5 Soil Resources

The scope and range of effects to soil resources from past, present, and reasonably foreseeable future actions in Spring Valley, Nevada were described in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012; section 3.4.3). The expected cumulative effects resources from the proposed action or alternatives were reasonably and adequately analyzed in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012), no other cumulative impacts are anticipated.

4.2.6 Vegetative Resources

The scope and range of effects to vegetative resources from past, present, and reasonably foreseeable future actions in Spring Valley, Nevada were described in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012; section 3.5.3). The expected cumulative effects resources from the proposed action or alternatives were reasonably and adequately analyzed in the Clark, Lincoln, and White Pine Counties Groundwater Development Project Final Environmental Impact Statement (BLM, 2012), no other cumulative impacts are anticipated.

4.3 Cumulative Impacts Summary

The cumulative impacts of this grazing permit renewal, when considered in combination with past, present and reasonably foreseeable future actions, would have minimal impacts to most resources. Proposed changes to grazing management in this grazing permit renewal would improve overall rangeland health within the allotments. Cumulative effects would not approach a level of significance for any resource analyzed.

5.0 List of Preparers BLM Schell Field Office Resource Specialists

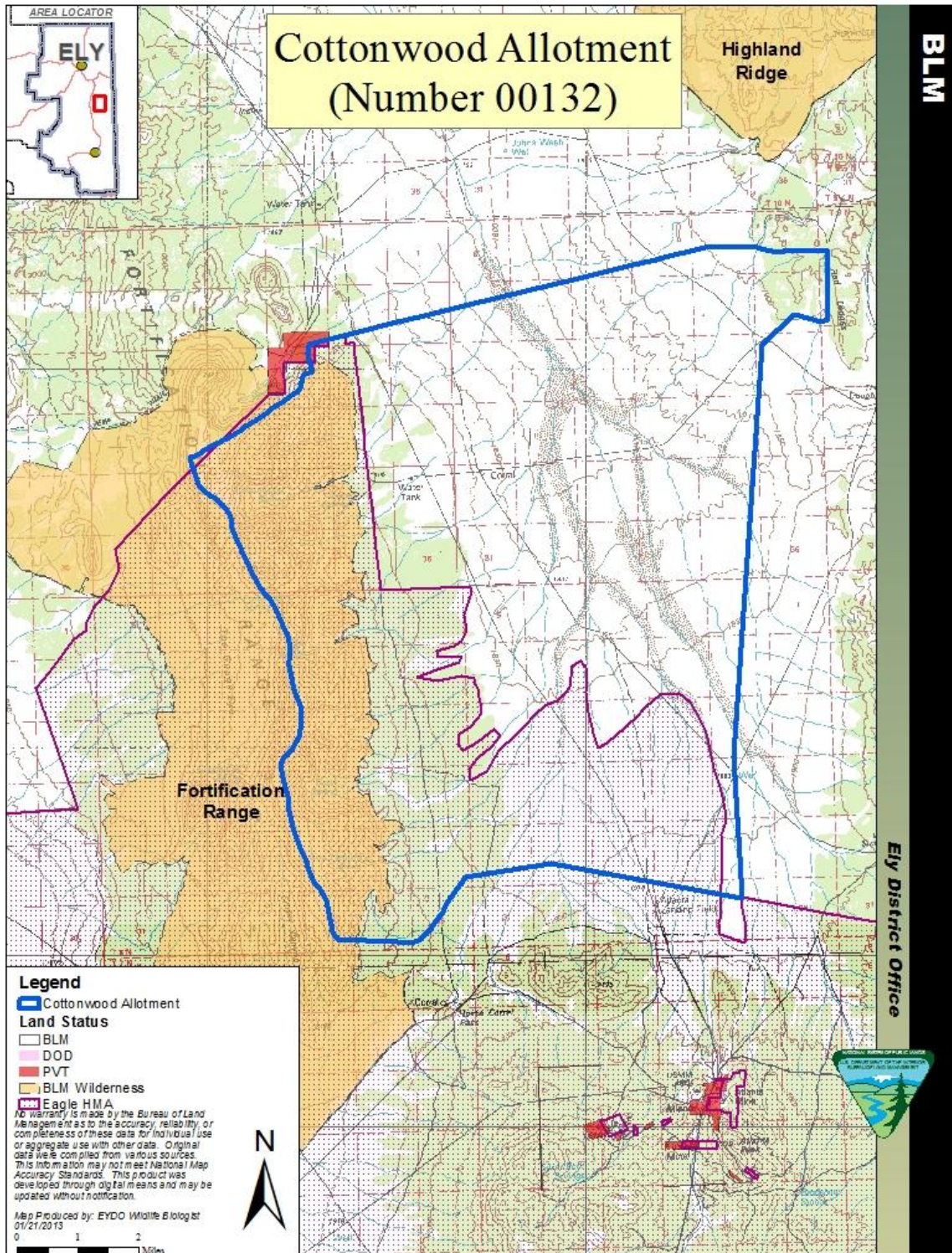
Name	Title	Responsible for the Following Section(s) of this Document
Jake Ferguson	Rangeland Management Specialist	Rangeland and Vegetative Resources
Nancy Herms	Wildlife Biologist	Fish and Wildlife, Migratory Birds, Federally Listed or Proposed Threatened and Endangered Species, BLM Nevada Sensitive Species.
Chris McVicars	Natural Resource Specialist	Noxious and Invasive Weed Management
TJ Mabey	Forester	Forestry
John Miller	Wilderness Ranger	Recreation, Visual Resources
Emily Simpson	Wilderness Planner	Wilderness
Leslie Riley	Archeologist	Cultural Resources
Brenda Linnell	Reality Specialist	Lands
Mark D'Aversa	Hydrologist	Soil, Water, Air, Wetlands and Riparian
Elvis Wall	Native American Coordinator	Native American Religious Concerns, Tribal Coordination
Benjamin Noyes	Wild Horse and Burro Specialist	Wild Horse and Burro
Melanie Peterson	Environmental Protection Specialist	Wastes, Hazardous and Solid

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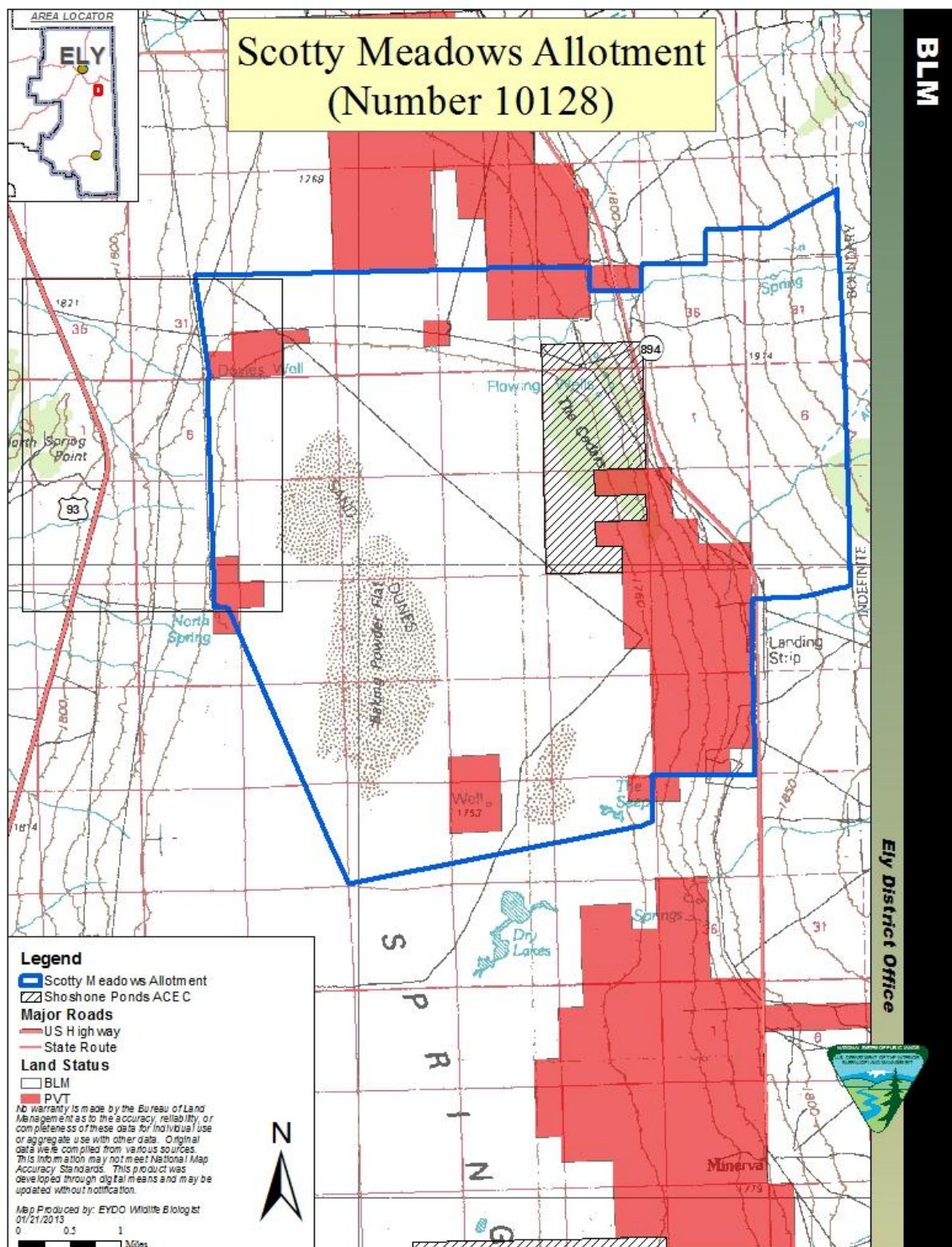
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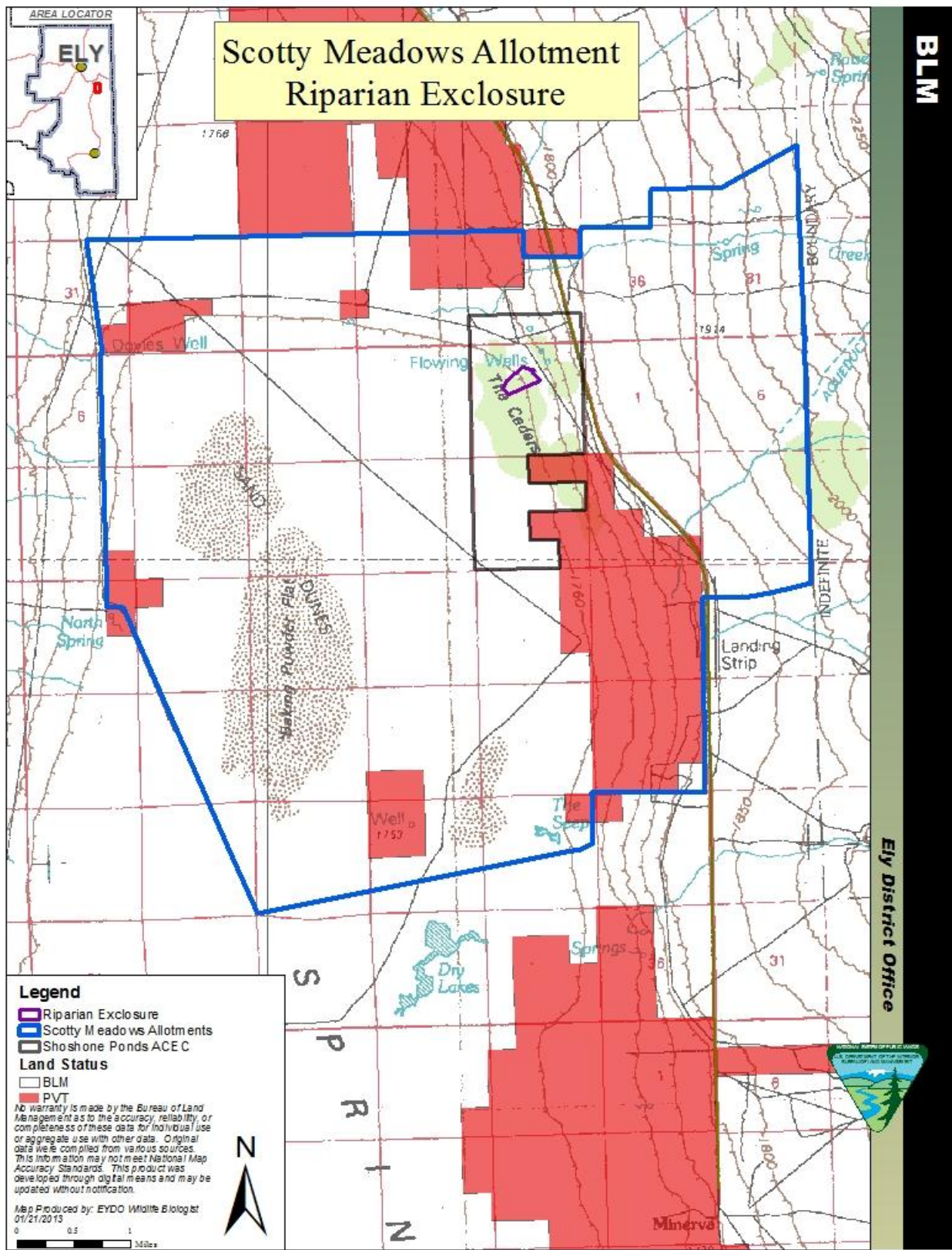
APPENDIX 1 MAPS



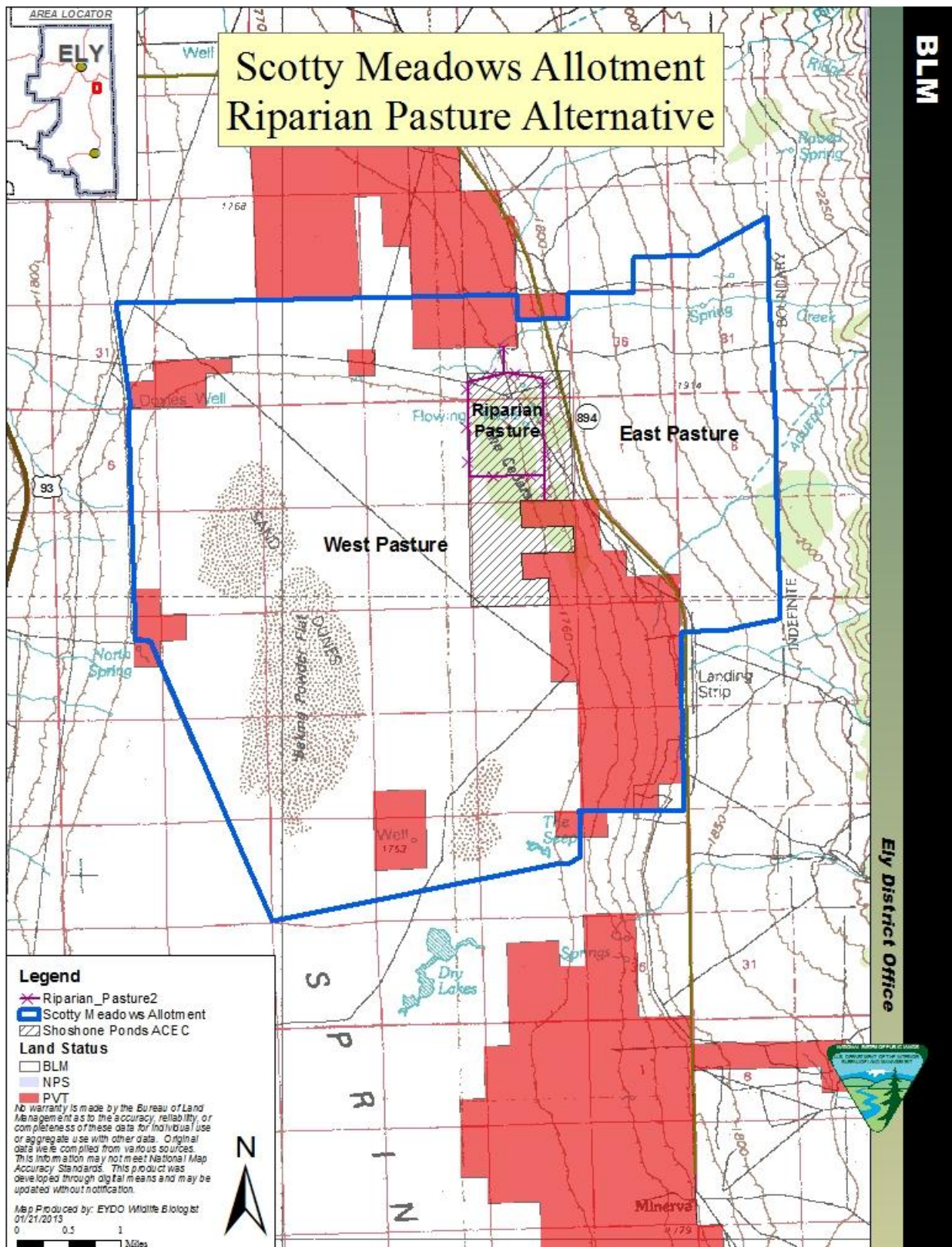
Map 1. Overview of the Cottonwood Allotment.



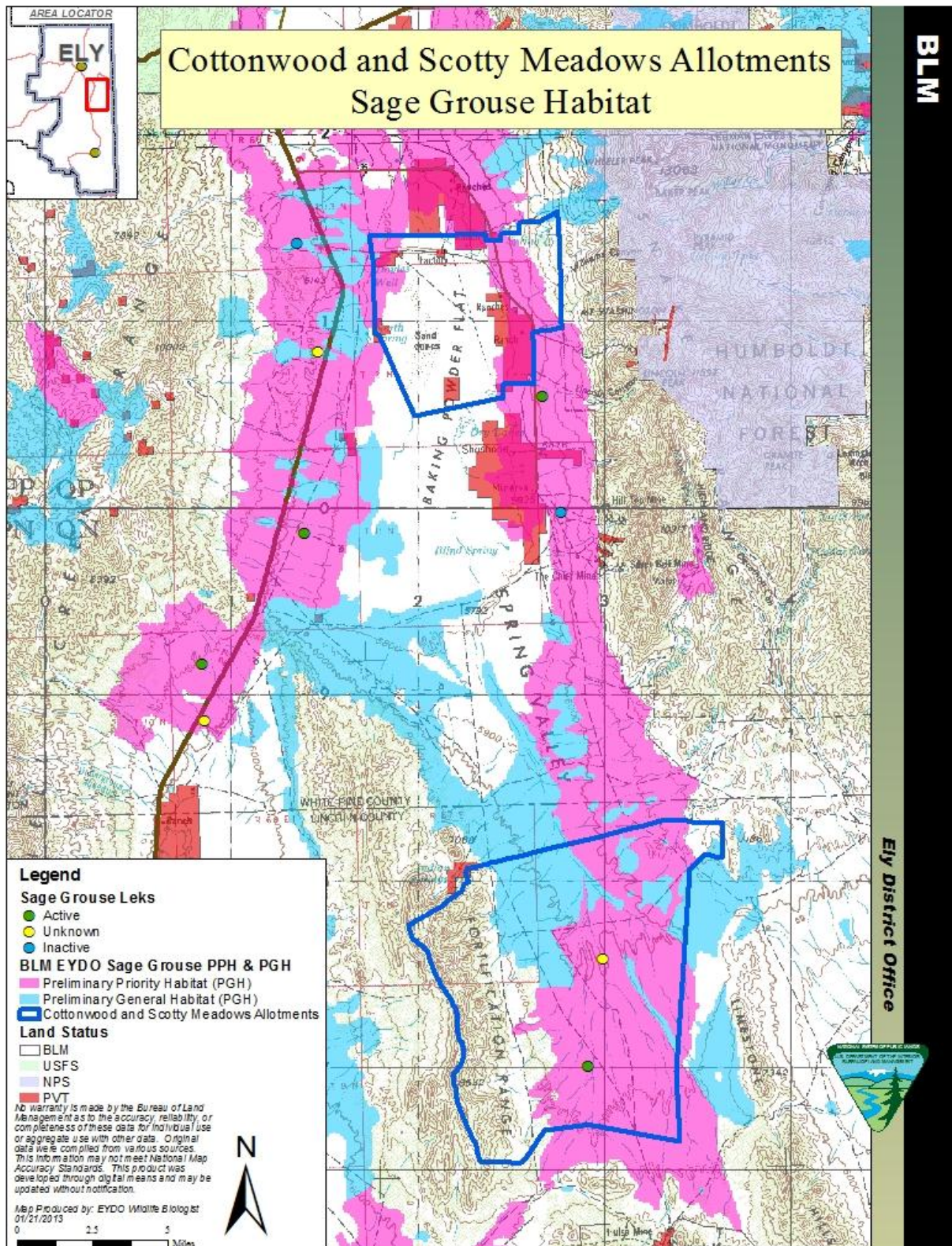
Map 2. Overview of the Scotty Meadows Allotment.

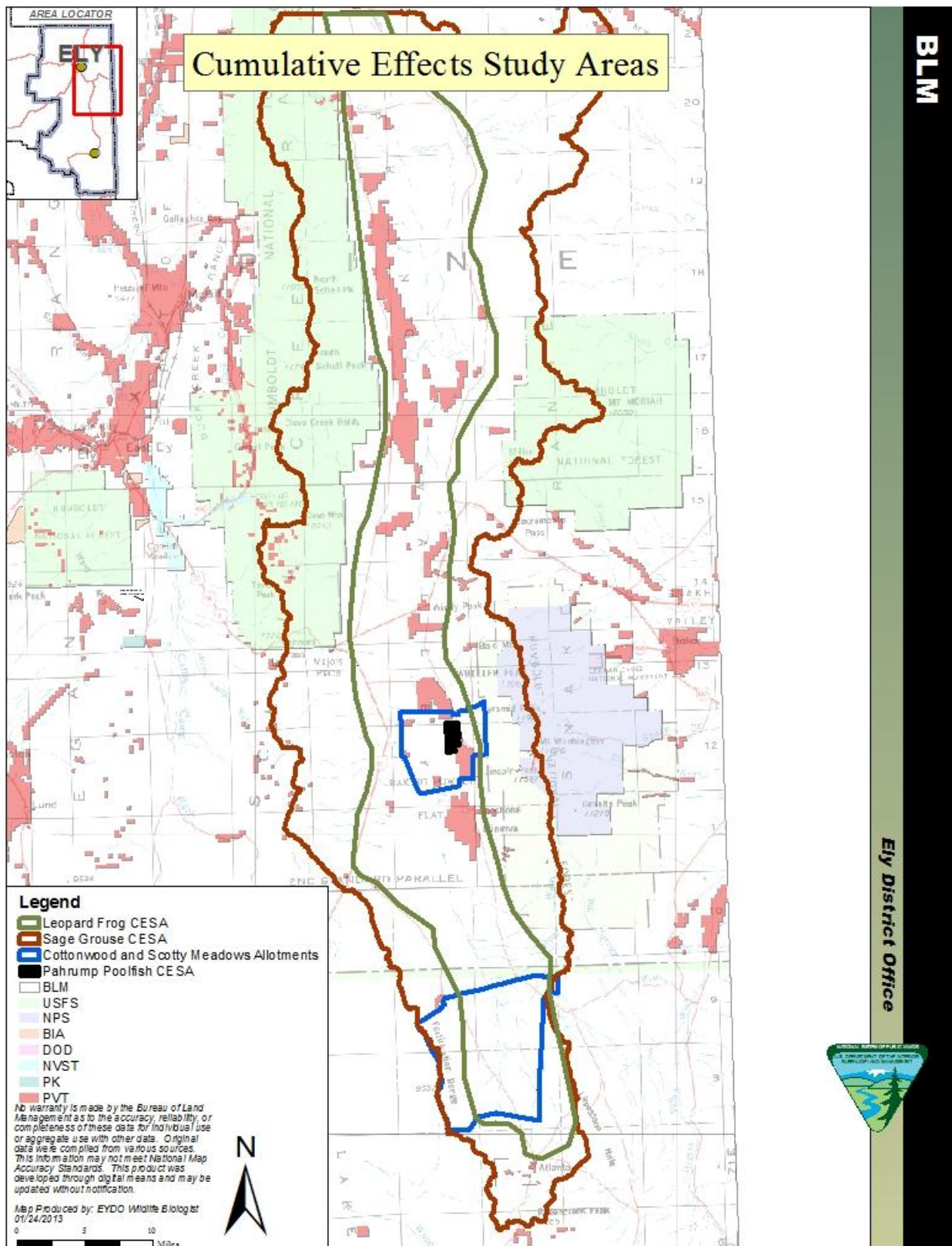


Map 4. Scotty Meadows Allotment Riparian Exclosure for the Proposed Action.



Map 5. Scotty Meadows Allotment Riparian Pasture Alternative.





Map 7. Cumulative Effects Study Areas for Northern Leopard Frog, Greater Sage-Grouse, and Pahrump Poolfish.

APPENDIX 2
Standards Determination Document
Cottonwood Allotment (00132)
Scotty Meadows Allotment (10128)

Standards and Guidelines Assessment

Standards and Guidelines for Grazing Administration were developed by the Northeastern Great Basin Resource Advisory Council (RAC) and the Mojave-Southern Great Basin RAC and approved by the Secretary of the Interior in 1997 and 2006 respectively. Standards and Guidelines reflect the stated goals of improving rangeland health while providing for the viability of the livestock industry, all wildlife species, and wild horses and burros in the Northeastern Great Basin Area and the Mojave-Southern Great Basin Area. Following the RAC's Standards and Guidelines would result in a balance of sustainable development and multiple uses along with progress towards attaining healthy, properly functioning rangelands. The multiple uses include, but are not limited to recreation, minerals, cultural resources, community economics, Areas of Critical Environmental Concern, designated wilderness, and wilderness study areas. Guidelines point to management actions related to livestock grazing for achieving the Standards.

The Cottonwood Allotment is within the area covered by the Mojave-Southern Great Basin RAC standards and guidelines. The Scotty Meadows Allotment is within the area covered by the Northeastern Great Basin RAC standards and guidelines.

This Standards Determination Document (SDD) evaluates and assesses livestock grazing management achievement of the standards and conformance to the guidelines for the Cottonwood (00132) and Scotty Meadows (10128) Allotments in the Schell Field Office. This document does not evaluate or assess achievement of the Wild Horse and Burro or Off Highway Vehicle Standards or conformance to their respective guidelines.

The Standards were assessed for the Cottonwood and Scotty Meadows Allotments by a BLM interdisciplinary team of specialists. Documents and publications used in the assessment process include the Soil Survey of White Pine Area, East Part, Parts of White Pine County (USDA-NRCS 2005); the Soil Survey of Lincoln County, North Part (USDA-NRCS 2007); Ecological Site Descriptions for Major Land Resource Areas (<http://apps.cei.psu.edu/mlra/>, retrieved 1/29/2013); Interpreting Indicators of Rangeland Health (BLM et al. 2000); Sampling Vegetation Attributes (BLM et al. 1996); the National Range and Pasture Handbook (USDA-NRCS 1997); and A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lentic Areas (TR 1737-16 Revised 2003). The interdisciplinary team also used rangeland monitoring data, maps, professional observations, and photographs to assess achievement of the Standards and conformance to the Guidelines. A complete list of references is included at the end of this SDD.

Allotment Information

The Cottonwood Allotment consists of 49,975 public acres situated approximately 50 miles southeast of Ely, Nevada in Lincoln County. The allotment includes six pastures which consist of two native pastures (South and North) and four crested wheatgrass seedings (Upper Seeding, Middle Seeding, Lower Seeding, and Deer Flat Seeding) established in the 1960's. The Eagle Wild Horse Herd Management Area (HMA) comprises 21,807 acres of the Cottonwood Allotment, and 8,702 acres are within the Fortification Range Wilderness.

Management practices were implemented in the Final Multiple Use Decision (FMUD) issued for the Cottonwood Allotment on May 2, 1997. The Cottonwood Allotment has 1,862 active AUMs. In addition, 386 AUMs were placed into mandatory non-use required for conservation and protection purposes, and equals the average number of AUMs of the four seeded pastures to cover one pasture being rested each year. The total number of animal unit months of specified livestock grazing should be used in lieu of “permitted use”. The season of use for the Cottonwood Allotment is from 11/01 to 06/15. The native pastures are grazed from 11/01 to 03/13 and the crested wheatgrass seedings are grazed from 03/14 to 06/15.

The Scotty Meadows Allotment consists of 17,322 public acres situated approximately 40 miles southeast of Ely, Nevada in White Pine County. This allotment includes the Shoshone Ponds Area of Critical Environmental Concern (ACEC) which comprises 1,240 acres. The Scotty Meadows Allotment has 1,227 active AUMs. The season of use for this allotment is from 06/01 to 09/30. This allotment does not have a FMUD.

Rangeland monitoring is conducted at key areas, representative study sites, and plots in each allotment. The key areas, study sites, and plots have been selected based on accessibility, soil mapping units (SMUs), representative ecological (range) sites, and livestock use patterns. An ecological site is “a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation” at Historic Climax Plant Community (HCPC) (USDA-NRCS 1997). Ecological Site Descriptions (ESD) are used for inventory, evaluation, and management of native vegetation communities. The ecological site of a key area is determined based on several factors including soils, topography, and plant community. The primary evaluation period for this Standards determination Document is considered to be from 2001 through present.

PART 1. STANDARD CONFORMANCE REVIEW – COTTONWOOD ALLOTMENT
(Standards and Guidelines for Nevada’s Mojave-Southern Great Basin Area)

Table 1. Summary of Standards Achievement by Allotment

ALLOTMENT	STANDARD 1 Soils	STANDARD 2 Ecosystem Components	STANDARD 3 Habitat and Biota
Cottonwood	Achieving the Standard	Achieving the Standard	Not achieving the Standard, but making significant progress towards achieving the Standard

STANDARD 1 - SOILS:

“Watershed soils and stream banks should have adequate stability to resist accelerated erosion, maintain soil productivity, and sustain the hydrologic cycle.”

Soil Indicators:

- Ground cover (vegetation, litter, rock, bare ground)
- Surfaces (e.g., biological crusts, pavement)
- Compaction/infiltration

Riparian Soil Indicators

- Stream bank stability

All of the above indicators are appropriate to the potential of the ecological site.

Determination:

X Achieving the standard

- ☐ Not achieving the standard, but making significant progress toward the standard
- ☐ Not achieving the standard, and not making significant progress toward the standard

Causal Factors:

- ☐ Livestock are a contributing factor to not achieving the standard
- ☐ Livestock are not a contributing factor to not achieving the standard
- ☐ Failure to meet the standard is related to other issues or conditions

Findings:

Table 2 below displays the ESDs, soil types with associated precipitation zone (PZ), and approximate basal and crown cover for data comparison.

Table 2. Potential Basal and Crown Cover according to ESDs for Key Areas, Study Sites, and Plots.

Key Area/Study Site/Plot	Ecological Site Name	Ecological Site ID	Basal and Crown Plant Cover
C-5	Silty 8-10" PZ	R028AY030NV	5-15%
C-6 BS-60	Shallow Calcareous 8-10" PZ	R028AY013NV	15-25%
C-7 WS-25 SDC-0 SDC-10 SDC-14 SDC-17 SMO-0 SMO-7 SMO-17 SRC-12 SRC-16	Loamy 8-10" PZ	R028AY015NV	10-25%
WS-4 WS-6 WS-7 WS-8 WS-9 SRC-7 SRC-11	Loamy Fan 8-10" PZ	R028AY031NV	20-30%
WS-2 WS-3	Sandy 8-10" PZ	RO28AY005NV	10-25%
WSU-20 WSU-21	Gravelly Clay 8-10" PZ	R028AY050NV	25-40%

Tables 3 and 4 below describe ground cover types collected 2007 through 2009 in the Cottonwood Allotment. Table 3 data was collected using the line intercept method at established key areas and study sites. Table 4 data was collected using the line-point intercept method for watershed analysis and pre-treatment vegetation data. Key area, study site, and plot ground cover data was collected in the North and South native pastures and is displayed in Figure 1. All data was compared to the appropriate ESDs for determining achievement of Standard 1- Soils.

Table 3. 2007 Ground Cover Types by Percent in the Cottonwood Allotment (line intercept)

Key Area/Study Site	Basal & Canopy Plant (%)	Crust (%)	Litter (%)	Lichen/Moss (%)	Rock (%)	Bare Ground (%)
C-5	18	N/A	6	N/A	0	76
C-6	27	N/A	6	N/A	0	67
C-7	21	N/A	42	N/A	0	37
CSS1	20	N/A	28	N/A	0	52
CSS2	22	N/A	0	N/A	0	78

N/A – crust and lichen/moss data not required for line intercept method.

Table 4. 2007 - 2009 Ground Cover Types by Percent in the Cottonwood Allotment (line-point intercept).[#]

Plot	Basal & Canopy Plant (%)	Crust (%)	Litter (%)	Lichen/Moss (%)	Rock (%)	Bare Ground (%)
2007						
BS-60	25	0	44	0	0	56
WS-2	28	0	68	0	1	31
WS-3	38	0	26	5	1	69
WS-4	47	0	29	0	0	68
WS-6	42	0	37	0	0	62
WS-7	43	1	17	1	1	81
WS-8	33	0	30	1	1	68
WS-9	32	5	29	3	1	63
WS-25	46	1	17	0	1	83
WSU-20	49	0	57	1	18	24
WSU-21	39	0	43	0	31	27
2008						
SDC-0	40	0	71	0	0	29
SDC-10	43	0	60	0	0	40
SDC-14	40	0	38	0	1	60
SDC-17	53	0	81	1	0	19
SMO-0	34	0	36	1	8	51
SMO-7	43	1	27	5	3	62
SMO-17	32	0	47	1	5	47
2009						
SRC-7	53	0	34	0	2	64
SRC-11	50	0	46	0	1	54
SRC-12	49	1	34	0	0	64
SRC-16	56	1	35	0	0	65

[#]due to rounding sum of percentages may be greater or less than 100%

Conclusion:

Standard 1 - Soils for the Cottonwood Allotment is being achieved. All sites meet or exceed the approximate basal and crown cover as indicated in the ESDs. There are no lotic systems in the Cottonwood Allotment to address the riparian soils indicator.

STANDARD 2 - ECOSYSTEM COMPONENTS:

“Watersheds should possess the necessary ecological components to achieve state water quality criteria, maintain ecological processes, and sustain appropriate uses. Riparian and wetlands vegetation should have structural and species diversity characteristic of the stage of stream channel succession in order to provide forage and cover, capture sediment, and capture, retain, and safely release water (watershed function).”

Upland Indicators:

- Canopy and ground cover, including litter, live vegetation, biological crust, and rock appropriate to the potential of the ecological site
- Ecological processes are adequate for the vegetative communities

Riparian Indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows.
- Elements indicating proper functioning condition such as avoiding acceleration erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:
 - Width/Depth ratio
 - Channel roughness
 - Sinuosity of stream channel
 - Bank stability
 - Vegetative cover (amount, spacing, life form)
 - Other cover (large woody debris, rock)
 - Natural springs, seeps and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

Water Quality Indicators:

- Chemical, physical, and biological constituents do not exceed the state water quality Standards

The above indicators shall be applied to the potential of the ecological site.

Determination:**X Achieving the standard**

- ☐ Not achieving the standard, but making significant progress toward the standard
- ☐ Not achieving the standard, and not making significant progress toward the standard

Causal Factors:

- ☐ Livestock are a contributing factor to not achieving the standard

- Livestock are not a contributing factor to not achieving the standard
- Failure to meet the standard is related to other issues or conditions

Findings:

Upland

Tables 2 through 4 above display the ground cover types for sites in the native pastures of the Cottonwood Allotment. Data indicates basal and crown cover meets or exceeds ESD guidance.

Riparian

On July 23, 2007 Cottonwood Spring was assessed for Proper Functioning Condition (PFC). This spring is located in the northwest corner of the South Native Pasture. The spring was found to be in PFC and noted as having “good vegetative conditions” (Figure 2). Water flows from Cottonwood Spring into the Kirkeby Pipeline to several troughs located in the valley.

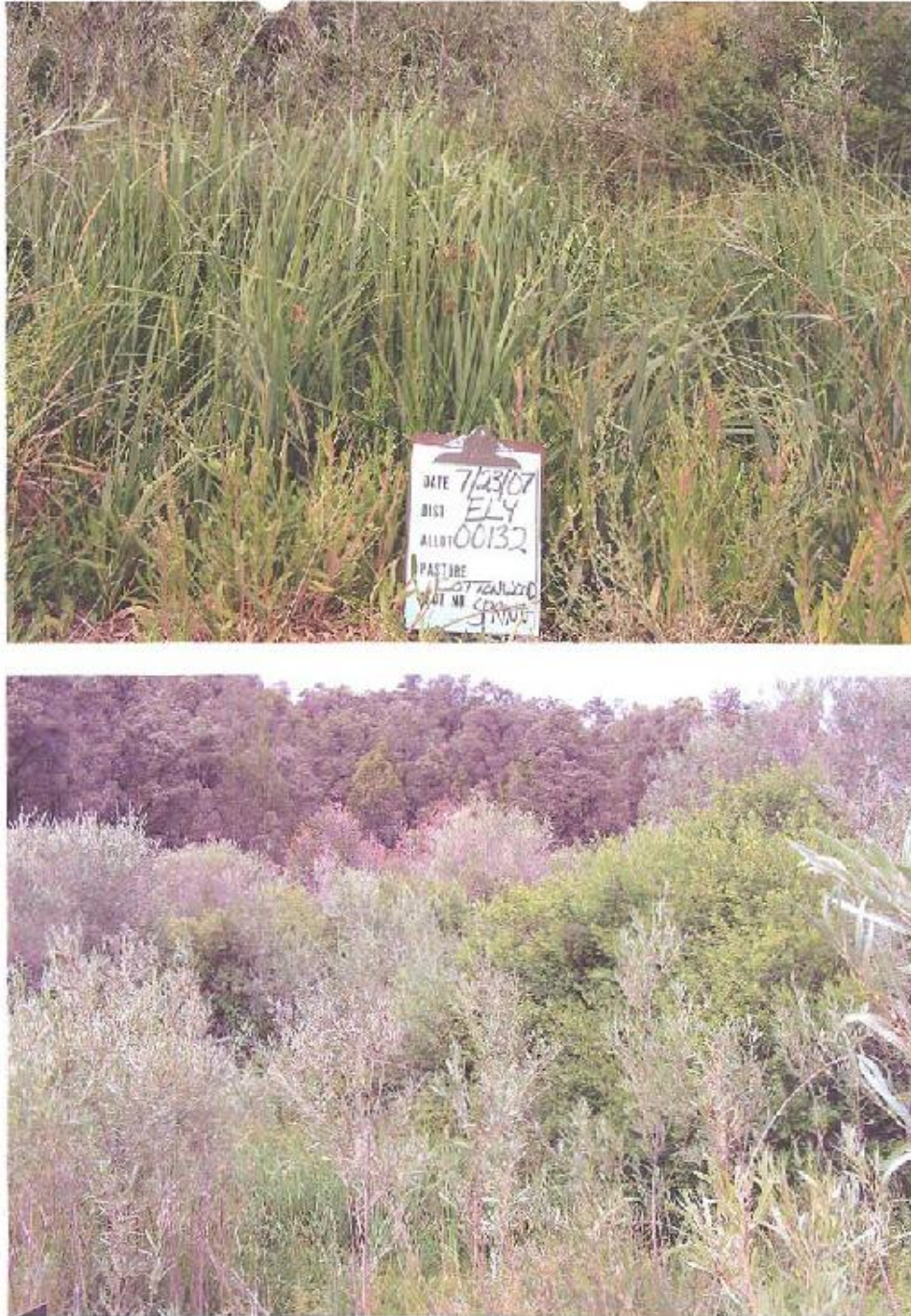


Figure 2. Cottonwood Spring (July 23, 2007)

Conclusion:

Standard 2 – Ecosystem Components for the Cottonwood Allotment is being achieved because the Cottonwood Spring is in PFC and ground cover meets or exceeds what is expected for site potential.

STANDARD 3 - HABITAT AND BIOTA:

“Habitats and watersheds should sustain a level of biodiversity appropriate for the area and conducive to appropriate uses. Habitats of special status species should be able to sustain viable populations of those species.”

Habitat Indicators:

- Vegetation composition (relative abundance of species)
- Vegetation structure (life forms, cover, height, or age class)
- Vegetation distribution (patchiness, corridors)
- Vegetation productivity
- Vegetation nutritional value

Wildlife Indicators:

- Relative abundance
- Composition
- Distribution
- Nutritional value
- Edge-patch snags

Determination:

- ☐ Achieving the standard
- ☒ **Not achieving the standard, but making significant progress toward the standard**
- ☐ Not achieving the standard, and not making significant progress toward the standard

Causal Factors:

- ☐ Livestock are a contributing factor to not achieving the standard
- ☒ **Livestock are not a contributing factor to not achieving the standard**
- ☒ **Failure to meet the standard is related to other issues or conditions**

Findings:

Forage Utilization on the Native Range:

Utilization data was collected using Key Species Method at key areas, study sites, and representative grazing areas. The results are presented in Tables 5 through 9.

Table 5. Utilization on Native Range of the Cottonwood Allotment for 2000 Grazing Year.

Key Area	Key Species	Use Level
C-05	Indian ricegrass	84%
C-06	Indian ricegrass	90%
C-07	Winterfat	90%
	Indian ricegrass	86%
C-08	No herbaceous understory	N/A

Table 6. Utilization on Native Range of the Cottonwood Allotment for 2001 Grazing Year.

Pasture	Key Species	Use Level
North Native	Winterfat	64%
	Indian ricegrass	88%
South Native	Indian ricegrass	77%*
	Winterfat	81%*
South Native	Indian ricegrass	87%**
	Winterfat	90%

* Mean of two transects.

** Mean of three transects.

Table 7. Utilization on Native Range of the Cottonwood Allotment for 2003 Grazing Year.

Pasture	Key Species	Use Level
North Native	Winterfat	16%
North Native	Indian ricegrass	12%
North Native	Winterfat	21%
North Native	Winterfat	10%
	Indian ricegrass	3%
North Native	Winterfat	15%
	Indian ricegrass	5%
South Native	Winterfat	74%

Table 8. Utilization on Native Range of the Cottonwood Allotment for 2007 Grazing Year.

Key Area/Study Site/Pasture	Key Species	Use Level
C-05	Winterfat	48%
	Indian ricegrass	39%
C-06	Winterfat	25%
	Indian ricegrass	9%
C-07	Indian ricegrass	28%
CSS1	Indian ricegrass	32%
South Native	Winterfat	48%
South Native	Winterfat	47%*
South Native	Winterfat	68%
	Indian ricegrass/Bottlebrush squirreltail	82%
South Native	Indian ricegrass	46%
North Native	Winterfat	44%
North Native	Winterfat	30%

* Mean of three transects in winterfat stringer(s).

Table 9. Utilization on Native Range of the Cottonwood Allotment for 2008 Grazing Year.

Key Area/Pasture	Key Species	Use Level
C-05	Winterfat	28%
C-06	Winterfat	34%
	Indian ricegrass	11%
C-07	Indian ricegrass	30%
	Needleandthread grass	24%
North Native	Indian ricegrass	15%
	Needleandthread grass	11%

Forage Utilization on Crested Wheatgrass Seedings:

Utilization data was collected using Key Species Method at key areas, study sites, and representative grazing areas. The results are presented in Tables 10 through 14.

Table 10. Utilization for the Crested Wheatgrass Seedings for 2001 Grazing Year.

Pasture	Key Species	Use Level
Upper Seeding	Crested wheatgrass	56%
	Indian ricegrass	10%
Upper Seeding	Crested wheatgrass	56%
Middle Seeding	Crested wheatgrass	62%*
Middle Seeding	Crested wheatgrass	78%
Lower Seeding	Crested wheatgrass	86%
Deer Flat Seeding	Crested wheatgrass	79%*
	Indian ricegrass	52%

*The mean of four transects.

Table 11. Utilization for the Crested Wheatgrass Seedings for 2003 Grazing Year.

Transect and Seeding	Key Species	Use Level
C-01	Crested wheatgrass	5%
C-02	Crested wheatgrass	9%
C-03	Crested wheatgrass	64%
C-04	Crested wheatgrass	72%

Table 12. Utilization for the Crested Wheatgrass Seedings for 2007 Grazing Year.

Transect and Seeding	Key Species	Use Level
C-01	Crested wheatgrass	72%
C-02	Crested wheatgrass	66%
C-03	Crested wheatgrass	1%
C-04	Crested wheatgrass	74%

Table 13. Utilization for Crested Wheatgrass Seedings for 2008 Grazing Year.

Key Area	Key Species	Use Level
C-01	Crested wheatgrass	72%
	Needleandthread	39%
C-02	Crested wheatgrass	80%
C-03	Crested wheatgrass	58%
C-04	Crested wheatgrass	52%
	Globemallow	57%

Table 14. Utilization for the Crested Wheatgrass Seedings for 2009 Grazing Year.

Pasture	Key Species	Use Level
Upper Seeding	Crested wheatgrass	34%
Middle Seeding	Crested wheatgrass	12%
Deer Flat Seeding	Crested wheatgrass	13%

Table 15 displays ESDs, approximate ground cover, and vegetative composition for each key area, study site, and plot. This table is used as a reference for data comparison to determine if Standard 3 – Habitat is being achieved.

Tables 16 and 17 describe percent composition and percent cover data collected 2007 through 2009 in the Cottonwood Allotment. In 2007, data was collected using line intercept and line-point intercept methods. Additional line-point intercept data was collected for watershed analysis and pre-treatment vegetation in 2007 through 2009. Key area, study site, and plot data was collected in the North and South Native Pastures and is displayed in Figure 1. All data was compared to the appropriate ESDs for determining achievement of Standard 3 - Habitat.

Table 15. Potential Plant Community Summary based on Ecological Site Descriptions (ESD) for Cottonwood Allotment Key Areas.

Key Area/ Study Site/Plot	Ecological Site Name	Ecological Site ID	Ground Cover	Shrub Composition	Grass Composition	Forb Composition
C-5	Silty 8-10" PZ	R028AY030NV	5-15%	65%	30%	5%
C-6 BS-60	Shallow Calcareous 8-10" PZ	R028AY013NV	15-25%	45%	45%	10%
C-7 WS-25 SDC-0 SDC-10 SDC-14 SDC-17 SMO-0 SMO-7 SMO-17 SRC-12 SRC-16	Loamy 8-10" PZ	R028AY015NV	10-25%	40%	55%	5%
WS-4 WS-6 WS-7 WS-8 WS-9 SRC-7 SRC-11	Loamy Fan 8-10" PZ	R028AY031NV	20-30%	55%	40%	5%
WS-2 WS-3	Sandy 8-10" PZ	RO28AY005NV	10-25%	35%	60%	5%
WSU-20 WSU-21	Gravelly Clay 8-10" PZ	R028AY050NV	25-40%	35%	55%	10%

Table 16. 2007 and 2009 Percent Composition Vegetation Data in the Cottonwood Allotment.

Key Area/ Study Site/Plot	Tree Composition (%)	Shrub Composition (%)	Grass Composition (%)	Forb Composition (%)	Invasive Annual Grass Composition (%)	Invasive Annual Forb Composition (%)
2007 line intercept						
C-5	0	98	2	0	0	Trace
C-6**	0	89	10	1	0	0
C-7	0	75	16	9	0	0
CSS1	0	93	5	2	0	0
CSS2	0	100	0	0	0	0
2007 line point intercept						
BS-60	0	61	12	10	16	0
WS-2	0	96	4	0	0	0
WS-3	0	82	15	Trace	3	0
WS-4	0	54	16	2	27	0
WS-6	0	77	19	0	4	0
WS-7	0	100	Trace	0	Trace	0
WS-8	0	65	5	14	3	13
WS-9	0	85	15	0	0	0
WS-25	Trace	58	0	0	42	0
WSU-20	Trace	37	0	0	63	0
WSU-21	49	22	1	0	28	0
SDC-0 ^a	9	73	3	0	15	0
SDC-10 ^a	0	90	6	0	5	0
SDC-14 ^a	57	35	1	0	7	0
SDC-17 ^a	2	89	1	0	8	0
SMO-0 ^a	0	86	12	2	0	0
SMO-7 ^a	0	86	1	0	0	13
SMO-17 ^a	0	68	20	0	12	0
2009 line point intercept						
C-5	0	53	0	0	0	47*
SRC-7	0	89	11	0	0	0
SRC-11	0	83	13	3	1	0
SRC-12	0	89	5	5	0	0
SRC-16	0	83	14	3	1	0

* halogeton

^a data collected in October

** See Figure 3

Table 17. 2007 - 2009 Percent Cover Vegetation Data in the Cottonwood Allotment.

Key Area/Study Site/Plot	Total Cover (%)	Tree Cover (%)	Shrub Cover (%)	Grass Cover (%)	Forb Cover (%)	Invasive Annual Grass Cover (%)	Invasive Annual Forb Cover (%)
2007 line intercept							
C-5	18	0	18	0	0	0	0
C-6	27	0	24	3	Trace	0	0
C-7	21	0	16	3	2	0	0
CSS1	20	0	19	1	Trace	0	0
CSS2	22	0	22	0	0	0	0
2007 line-point intercept							
BS-60	25	0	15	3	3	4	0
WS-2	27	0	26	1	0	0	0
WS-3	38	0	31	6	Trace	1	0
WS-4	43	0	23	7	1	12	0
WS-6	40	0	30	8	0	2	0
WS-7	42	0	42	Trace	0	Trace	0
WS-8	32	0	24	2	0	1	5*
WS-9	31	0	26	5	0	0	0
WS-25	46	0	27	0	0	19	0
WSU-20	48	0	18	0	0	30	0
WSU-21	38	18	8	1	0	11	0
2008 line-point intercept							
SDC-0	40	4	29	1	0	6	0
SDC-10	43	0	39	3	0	2	0
SDC-14	39	23	14	Trace	0	3	0
SDC-17	52	1	47	1	0	4	0
SMO-0	29	0	25	4	1	0	0
SMO-7	40	0	34	1	0	0	5**
SMO-17	30	0	21	6	0	4	0
2009 line-point intercept							
C-5	17	0	9	Trace	0	0	8*
SRC-7	52	0	46	6	Trace	Trace	0
SRC-11	50	0	42	7	2	1	0
SRC-12	47	0	42	3	3	0	0
SRC-16	55	0	45	8	2	1	0

* halogeton

** tumble mustard



Figure 3. This photograph shows ground cover and composition of Native Pasture (C-06) (2009).

Conclusions:

The Cottonwood Allotment provides habitat for many wildlife species, including sagebrush obligates, particularly Greater Sage-Grouse. Greater Sage-Grouse are a high-profile sensitive species that has been determined by the US Fish and Wildlife Service to be warranted for listing as a threatened or endangered species but precluded due to higher priority species. The BLM is applying additional conservation measures to protect Greater Sage-Grouse and their habitat to prevent the species from becoming listed under the Endangered Species Act (ESA). The Cottonwood Allotment consists of both preliminary general and priority Greater Sage-Grouse habitat. Based on vegetation data, the

majority of the allotment is not meeting the habitat needs for Greater Sage-Grouse with minimal herbaceous understory necessary for early-brood rearing.

Standard 3-Habitat and Biota is not being achieved in the Cottonwood Allotment. Data indicates the vegetation composition has shifted from reference conditions to a shrub dominated community with minimal herbaceous understory. However, factors other than current livestock management are contributing to not achieving Standard 3.

Lack of fire in the Cottonwood Allotment has contributed to the vegetation community shifting from reference conditions. According to the LANDFIRE Biophysical Setting Model, the average fire return interval for inter-mountain basins big sagebrush shrubland is 115 years (Landfire 2007). Based on a GIS analysis and allotment evaluations, there is no indication that fire has occurred in the sagebrush community within the last 115 years.

Nevada is subject to variable precipitation with frequent drought periods. According to precipitation data from the Western Regional Climate Center, there was a drought 2007 – 2008. Average annual precipitation was 6.76 inches in 2007 and 5.5 inches in 2008 for Ely, Nevada. Normal yearly average for Ely, Nevada is 9.95 inches per year. Composition and cover data was collected during these drought years and may contribute to not achieving Standard 3.

The Cottonwood Allotment is making significant progress towards achieving the Standard 3. Data collected between 2000 through 2009 indicate that livestock utilization levels have decreased over this time period. With appropriate grazing management and allowable use levels, plants are stimulated resulting in increased plant production. Additionally, plants would retain above ground biomass to continue photosynthetic processes and improve carbohydrate root storage for vigor, reproduction, and increase perennial cover, as well as contribute litter for soil protection and health.

In 2009, a Greater Sage-Grouse habitat restoration project treated approximately 5,000 acres of sagebrush, in the South Native Pasture, to decrease pinyon-juniper and sagebrush cover and increase the herbaceous understory. Treatments methods included double chaining, roller chopping, and mowing, and seeding with a mixture of perennial grasses and forbs.

Wild horses are a contributing factor to not achieving Standard 3 in the Cottonwood Allotment. The Cottonwood Allotment comprises three percent of the Eagle HMA. The appropriate management level (AML) for the Eagle HMA is 100 – 210 wild horses (BLM, 2008). The estimated wild horse population in 2009 was 878. In 2011, 817 wild horses were removed from the HMA. The removal of wild horses from the Cottonwood Allotment is expected to contribute to making progress towards achieving Standard 3.

PART 1. STANDARD CONFORMANCE REVIEW – SCOTTY MEADOWS ALLOTMENT
(Standards and Guidelines for Nevada’s Northeastern Great Basin Area)

Table 18. Summary of Standards Achievement by Allotment

ALLOTMENT	STANDARD 1 Upland Sites	STANDARD 2 Riparian and Wetland Sites	STANDARD 3 Habitat
Scotty Meadows	Achieving the Standard	Not achieving the Standard and not making significant progress towards achieving the standard	Not achieving the Standard, trend unknown

Standard 1. Upland Sites:

“Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.”

Soil Indicators:

- Canopy and ground cover (live vegetation, litter, rock, bare ground)

All of the above indicators are appropriate to the potential of the ecological site.

Determination:

X Achieving the standard

- ☐ Not achieving the standard, but making significant progress toward the standard
- ☐ Not achieving the standard and not making significant progress toward the standard

Causal Factors:

- ☐ Livestock are a contributing factor to not achieving the standard
- ☐ Livestock are not a contributing factor to not achieving the standard
- ☐ Failure to meet the standard is related to other issues or conditions

Findings:

Table 19 below displays the ESDs, soil types with associated precipitation zone (PZ), and approximate basal and crown cover for data comparison.

Table 19. Potential Basal and Crown Cover according to ESDs for Key Areas, Study Sites, and Plots.

Key Area/Study Site/Plot	Ecological Site Name	Ecological Site ID	Basal and Crown Plant Cover
SM-01	Dry Saline Meadow	R028AY104NV	8-15%
SM-02	Shallow Calcareous Loam 8-10" PZ	R028AY013NV	15-25%
SM-03	Shallow Loam 8-10" PZ	R028AY017NV	10-20%
SM-04 GW-3 GW-4 GW-10	Saline Bottom	R028AY106NV	20-35%
SM-05	Sodic Flat 5-8" PZ	R028BY020NV	2-8%
SMSSA WS-4	Loamy 8-10" PZ	R028AY015NV	10-25%
SMSSC GW-5	Sodic Terrace 5-8" PZ	R028BY074NV	10-20%
BBS-6 BBS-7	Dry Floodplain	R028AY025NV	30-50%

Tables 20 and 21 below describe ground cover types collected in 2007 on the Scotty Meadows Allotment. Table 20 data was collected using the line intercept method at established key areas and study sites. Table 21 data was collected using the line-point intercept method for watershed analysis. Key area, study site, and plot ground cover data was collected in the North and South native pastures and is displayed in Figure 4. All data was compared to the appropriate ESDs for determining achievement of Standard 1- Soils.

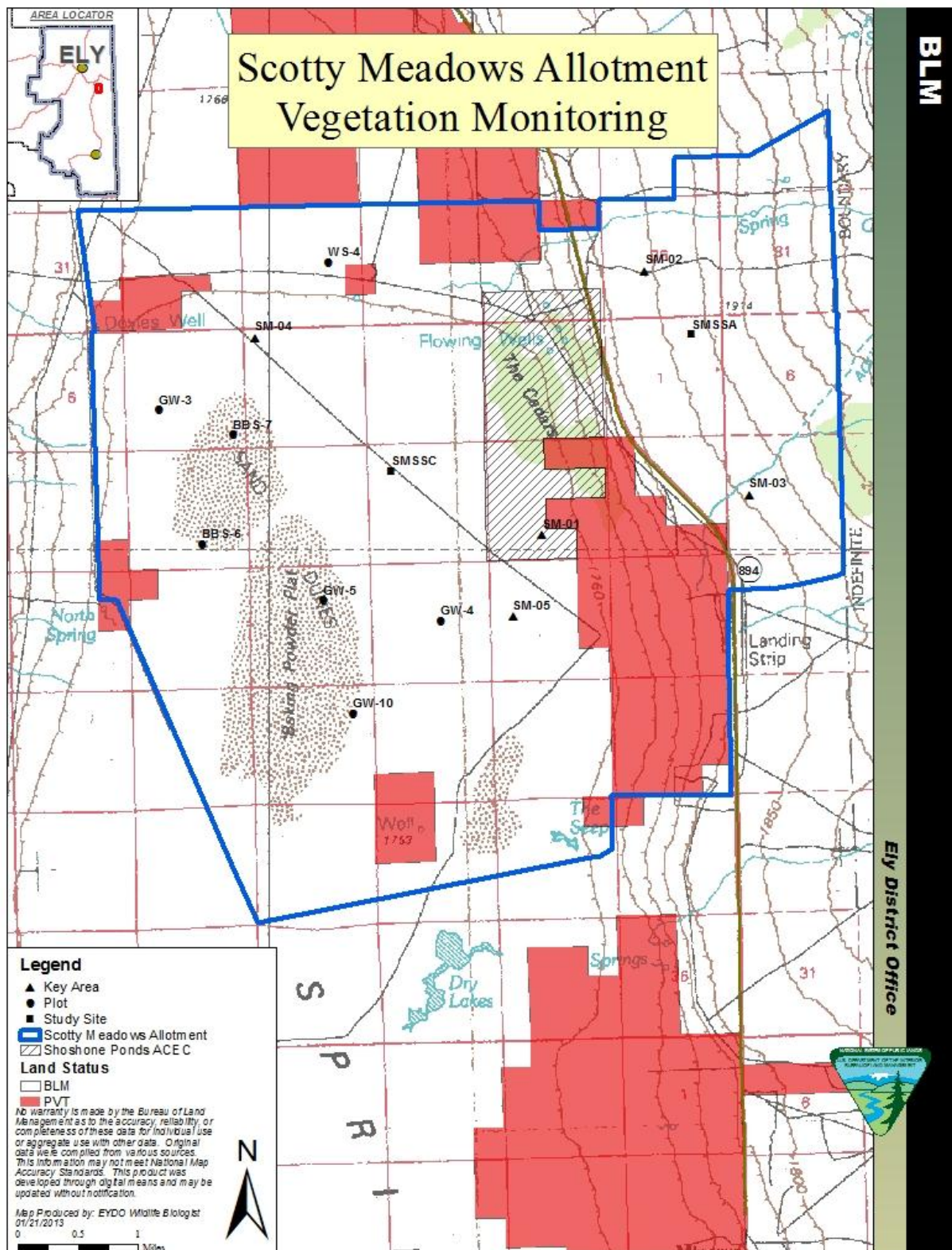


Figure 4. . Locations of Scotty Meadows Vegetation Monitoring at Key Areas, Study Sites, and Plots.

Table 20. 2007 Ground Cover Types by Percent in the Scotty Meadows Allotment (line intercept).

Key Area/Study Site	Vegetative Cover (basal & canopy) (%)	Litter (%)	Rock (%)	Bare Ground (%)	Crust (%)	Lichen/Moss (%)
SM-01	70	9	0	21	N/A	N/A
SM-02	19	9	3	69	N/A	N/A
SM-03	14	16	2	68	N/A	N/A
SM-04	17	9	0	74	N/A	N/A
SM-05	28	9	0	64	N/A	N/A
SMSSA	17	10	10	63	N/A	N/A
SMSSC	26	11	0	63	N/A	N/A

N/A – crust and lichen/moss data not required for line intercept method.

Table 21. 2007 Ground Cover Types by Percent in the Scotty Meadows Allotment (line point intercept).

Key Area/Study Site	Bare Ground (%)	Crust (%)	Litter (%)	Lichen/Moss (%)	Basal Plant (%)	Rock (%)
BBS-6	53	0	37	0	4	7
BBS-7	24	0	44	0	2	30
GW-3	19	0	58	0	4	20
GW-4	27	0	52	0	4	18
GW-5	10	0	82	0	4	5
GW-10	24	0	63	0	4	9
WS-4	16	0	82	1	2	1

Conclusion:

Standard 1 – Upland Sites is being achieved for the Scotty Meadows Allotment. All sites meet or exceed the approximate basal and crown cover as indicated in the ESDs.

STANDARD 2 - RIPARIAN AND WETLAND SITES:

“Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.”

Riparian and Wetland Indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:
 - Width/Depth ratio
 - Channel roughness
 - Sinuosity of stream channel
 - Bank stability
 - Vegetative cover (amount, spacing, life form) and other cover (large woody debris, rock)
- Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.
- Chemical, physical and biological water constituents are not exceeding the state water quality standards.

The above indicators shall be applied to the potential of the ecological site.

Determination:

- ☐ Achieving the standard
- ☐ Not achieving the standard, but making significant progress toward the standard
- X Not achieving the standard, and not making significant progress toward standard**

Causal Factors:

- X Livestock are a contributing factor to not achieving the standard**
- ☐ Livestock are not a contributing factor to not achieving the standard
- ☐ Failure to meet the standard is related to other issues or conditions

Findings:

Based on photo documentation and professional observation the riparian meadow and associated spring brook at Shoshone Ponds is functional at risk. Condition and health of riparian vegetation in the perennially and intermittently saturated areas shows over-utilization of plants by livestock. Plant growth prior to livestock turnout shows plant height to be around 18 inches and 12 inches for sedges and rushes, respectively. Post-grazing period stubble height for both sedges and rushes is about one inch. Use of riparian vegetation in the drier portions of the meadow is usually not as severe as the wetter locations but plant growth in the dry parts of the meadow are not as vigorous either (Figure 6).

The spring brook associated with Shoshone Well #2 flows for about 120 feet from the well and shows almost 100-percent bank alteration due to livestock grazing. Livestock impact the stream system by consuming bank stabilizing vegetation and causing physical damage by crossing the stream along the

entire length of the spring brook. Hoof action displaces stream bank soil which leads to sedimentation with the result being a widening and shallowing of the stream system.

Spring Creek, which flows into the eastern side of the allotment, was evaluated and determined to be in PFC in 2007.



Figure 6. Shoshone Ponds wet meadow (August 2, 2009).

Conclusions:

Standard 2 – Riparian and Wetland Sites is not achieving the standard and not making significant progress toward achieving the standard due to factors mentioned in the findings above.

STANDARD 3 – HABITAT

“Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life requirements of threatened and endangered species.”

As indicated by:

- Vegetation composition (relative abundance of species)
- Vegetation structure (life forms, cover, height, or age class)
- Vegetation distribution (patchiness, corridors)
- Vegetation productivity
- Vegetation nutritional value

Determination:

- ☐ Achieving the standard
- ☐ Not achieving the standard, but making significant progress toward the standard
- ☐ Not achieving the standard, and not making significant progress towards the standard
- ☒ **Not achieving the standard, trend unknown**

Causal Factors:

- ☐ Livestock are a contributing factor to not achieving the standard
- ☒ **Livestock are not a contributing factor to not achieving the standard**
- ☒ **Failure to meet the standard is related to other issues or conditions**

Findings:

Table 22 below displays forage utilization for the Scotty Meadows Allotment for the 2006 grazing year.

Table 22. Forage Utilization for the Scotty Meadows Allotment for Native Range for 2006 Grazing Year.

Key Area/Study Site	Key Species	Use Level
SM-01	Inland saltgrass	16%
SM-02	Indian ricegrass	15%
SM-03	Needleandthread grass	44%
SM-04	Alkali sacaton	16%
SM-05	Alkali sacaton	15%
SM-06	Riparian vegetation	5%
Unnamed Transect 1	Basin wildrye	36%
Unnamed Transect 2	Indian ricegrass	33%

Table 23 below displays ESDs, appropriate ground cover, and vegetative composition for each key area, study site, and plot. This table is used as a reference for data comparison to determine if Standard 3 – Habitat is being achieved.

Table 23. Potential Plant Community Summary based on Ecological Site Descriptions for Scotty Meadows Allotment.

Key Area	Ecological Site Name	Ecological Site ID	Ground Cover (%)	Shrub Composition (%)	Grass Composition (%)	Forb Composition (%)
SM-01	Dry Saline Meadow	R028AY104NV	8-15	5	75	15
SM-02	Shallow Calcareous Loam 8-10" PZ	R028AY013NV	15-25	45	45	10
SM-03	Shallow Loam 8-10" PZ	R028AY017NV	10-20	50	45	5
SM-04 GW-3 GW-4 GW-10	Saline Bottom	R028AY106NV	20-35	15	80	5
SM-05	Sodic Flat 5-8" PZ	R028BY020NV	2-8	80	15	5
SMSSA WS-4	Loamy 8-10" PZ	R028AY015NV	10-25	40	55	5
SMSSC GW-5	Sodic Terrace 5-8" NV	R028BY074NV	10-20	85	10	5
BBS-6 BBS-7	Dry Floodplain	R028AY025NV	30-50	15	80	5

Tables 24 and 25 describe percent composition and percent cover data collected in 2007 for the Scotty Meadows Allotment. In 2007 data was collected using the line intercept and line-point intercept methods. Key area, study site, and plot locations are displayed in Figure 5. All data was compared to appropriate ESDs for determining achievement of Standard 3.

Table 24. 2007 Percent Composition Vegetation Data for the Scotty Meadows Allotment.

Key Area/ Study Site/Plot	Shrub Composition (%)	Grass Composition (%)	Forb Composition (%)	Invasive Annual Grass Composition (%)	Invasive Annual Forb Composition (%)
2007 line intercept					
SM-01	0	99	1	0	0
SM-02	91	7	2	0	Trace*
SM-03	79	21	Trace	Trace	0
SM-04	70	30	0	0	0
SM-05	50	50	Trace	0	0
SMSSA	80	16	4	0	0
SMSSC	100	Trace	0	0	0
2007 line point intercept					
BBS-6	51	47	2	0	0
BBS-7	37	55	7	0	0
GW-3	48	52	0	0	0
GW-4	Trace	99	1	0	0
GW-5	98	2	0	0	0
GW-10	47	51	3	0	0
WS-4	85	15	0	Trace	0

*tumble mustard

Table 25. 2007 Percent Cover Vegetation Data for the Scotty Meadows Allotment

Key Area/ Study Site/Plot	Total Cover (%)	Tree Cover (%)	Shrub Cover (%)	Grass Cover (%)	Forb Cover (%)	Invasive Annual Grass Cover (%)	Invasive Annual Forb Cover (%)
2007 (line intercept)							
SM-01	70	0	0	69	1	0	0
SM-02	18	0	17	1	Trace	0	0
SM-03	13	0	11	2	0	0	0
SM-04	17	0	12	5	0	0	0
SM-05	28	0	14	14	Trace	0	0
SMSSA	17	0	14	2	1	0	0
SMSSC	26	0	26	Trace	0	0	0
2007 (line-point intercept)							
BBS-6	34	0	17	16	1	0	0
BBS-7	28	0	10	16	2	0	0
GW-3	65	0	31	34	Trace	0	0
GW-4	56	0	Trace	55	1	0	0
GW-5	23	0	22	1	0	0	0
GW-10	51	0	23	26	2	0	0
WS-4	24	0	20	4	0	Trace	0

Conclusions:

The Scotty Meadows Allotment provides habitat for many wildlife species, including sagebrush obligates, particularly Greater Sage-Grouse. Approximately 24 percent of the Scotty Meadows Allotment is considered preliminary priority Greater Sage-Grouse habitat. Based on vegetation data, the sagebrush communities are not meeting the habitat needs for Greater Sage-Grouse because of minimal herbaceous understory.

The federally endangered Pahrump poolfish inhabits the spring brook from Shoshone Well #2, the stock pond, and the middle refugia pond. Pahrump poolfish are hardy and fairly adaptable fish, with its ability to survive and reproduce at sites that are distinctly different from its native habitat; its ability to survive and reproduce at sites that vary widely in environmental characteristics; and its ability to rebound from severe population crashes caused by habitat alterations (USFWS, 2012). Grazing in and around the spring brook has caused heavy stream bank alteration.

The northern leopard frog also inhabits the riparian area of the Shoshone Ponds ACEC of the Scotty Meadows Allotment. Grazing in the riparian meadow has heavily altered the system by removing protective vegetation and reducing adequate habitat for breeding.

Standard 3-Habitat is not being achieved in sagebrush communities found primarily in the eastern portions of the Scotty Meadows Allotment. Data indicates the vegetation composition has shifted from reference conditions to a shrub dominated community with minimal herbaceous understory which is an important component for Greater Sage-Grouse habitat. Due to limited data we are unable to determine a trend.

Lack of fire in the Scotty Meadows Allotment has contributed to the sagebrush community shifting from reference conditions. According to the LANDFIRE Biophysical Setting Model, the average fire return interval for inter-mountain basins big sagebrush shrubland is 115 years (Landfire, 2007). Based on a GIS analysis and allotment evaluations, there is no indication that fire has occurred in the sagebrush community within the last 115 years.

Nevada is subject to variable precipitation with frequent drought periods. According to precipitation data from the Western Regional Climate Center, there was a drought 2007 – 2008. Average annual precipitation was 6.76 inches in 2007 and 5.5 inches in 2008 for Ely, Nevada. Normal yearly average for Ely, Nevada is 9.95 inches per year. Composition and cover data was collected during these drought years and may contribute to not achieving Standard 3.

PART 2. ARE LIVESTOCK A CONTRIBUTING FACTOR TO NOT MEETING THE STANDARDS?

Cottonwood Allotment:

Standard 1 – Soils: The Standard is being achieved.

Standard 2 – Ecosystem Components: The Standard is being achieved.

Standard 3 – Habitat: The Standard is not being achieved. Livestock are not a contributing factor to not achieving the Standard. Data collected between 2000 through 2009 indicate that livestock utilization levels have decreased over this time period. Failure to meet the standard is related to historic livestock management practices, wild horse numbers above AML, periodic drought, and altered natural disturbance regimes which allow for pinyon and juniper trees to expand into sagebrush communities.

Scotty Meadows Allotment:

Standard 1 – Upland Sites: The standard is being achieved.

Standard 2 – Riparian and Wetland Sites: The Standard is not being achieved. Livestock are overgrazing riparian vegetation, and causing almost 100 percent bank alterations along the spring brook.

Standard 3 – Habitat: The standard is not being achieved on a portion of the allotment. Livestock are not a contributing factor to not achieving the Standard. Utilization is currently low to moderate. Failure to meet the standard is related to historic livestock management practices, periodic drought, and altered natural disturbance regimes which allow for pinyon and juniper trees to expand into sagebrush communities.

PART 3. GUIDELINE CONFORMANCE REVIEW

Cottonwood Allotment:

Grazing is in conformance with applicable Guidelines as provided in the Mojave-Southern Great Basin Standards and Guidelines.

Scotty Meadows Allotment:

Grazing is in conformance with applicable Guidelines as provided in the Northeastern Great Basin Standards and Guidelines.

PART 4. MANAGEMENT PRACTICES TO CONFORM WITH GUIDELINES AND ACHIEVE STANDARDS.

Recommendations for the Cottonwood Allotment:

1. Change the permitted use to 1,940 AUMs plus 308 AUMs nonuse to accommodate one of the crested wheatgrass seedings being rested each year.
2. Establish the permitted use for the native pastures based on a stocking rate of 30 acres per AUM. The North Native Pasture is approximately 13,500 acres. The South Native Pasture has approximately 17,000 acres of upland vegetation that is suitable for livestock grazing.
3. Change period of use from 11/01 – 6/15 to 11/01 – 02/19 on the native pastures and to 02/20 – 05/31 on the seeded pastures.
4. Implement the following grazing schedule:

Pasture	Pasture Rotation
YEAR 1	
North Native	1 st
South Native	2 nd
Upper Seeding	4 th
Middle Seeding	5 th
Lower Seeding	3 rd
Deer Flat Seeding	Rest
YEAR 2	
North Native	2 nd
South Native	1 st
Upper Seeding	3 rd
Middle Seeding	4 th
Lower Seeding	Rest
Deer Flat Seeding	5 th
YEAR 3	
North Native	1 st
South Native	2 nd
Upper Seeding	Rest
Middle Seeding	3 rd
Lower Seeding	5 th
Deer Flat Seeding	4 th
YEAR 4	
North Native	2 nd
South Native	1 st
Upper Seeding	5 th
Middle Seeding	Rest
Lower Seeding	4 th
Deer Flat Seeding	3 rd
REPEAT STARTING WITH YEAR 1	

5. Establish allowable use levels as follows: 45% of current year's growth for winterfat, 50% for native grasses, and 60% for crested wheatgrass.
6. Establish water hauling sites in the North and South Native Pastures.

Recommendations for the Scotty Meadows Allotment:

1. Permitted use to remain 1,227 active AUMs.
2. Season of use to remain 06/01 – 09/30.
3. Install a riparian fence around the spring brook and wet meadow to exclude livestock.
4. Establish allowable use levels as follows: 35% of current year's growth for winterfat and 50% for native grasses.

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Date

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Date

Reviewed by:

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Soil/water/floodplains/riparian/wetlands

Date

Chris McVicars
Noxious and invasive non-native species

Date

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Wild Horse and Burro Specialist

Date

Paul E. Podborny
Supervisory Resource Management Specialist

Date

I concur:

Michael E. Abel
Field Manager, Schell Field Office

Date

APPENDIX 3

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Term Grazing Permit Renewal for Southern Nevada Water Authority Cottonwood & Scotty Meadows Allotments White Pine & Lincoln Counties, Nevada

On January 2, 2013 a Noxious & Invasive Weed Risk Assessment was completed for Southern Nevada Water Authority grazing permit renewal for the Cottonwood and Scotty Meadows Allotments in White Pine and Lincoln County approximately 45 miles east and south of Ely, Nevada. The current grazing permit authorizes 250 cattle for 2,248 AUMs of cattle use on the Cottonwood Allotment with a season of use from 11/01 to 06/15. Grazing use occurs in five fenced pastures of the allotment and cattle numbers and season of use vary by pasture. The current grazing permit authorizes 378 cattle for 1,227 AUMs of cattle use on the Scotty Meadows Allotment with a season of use from 06/01 to 09/30. The issuance of the new grazing permit would be for a period of ten years. At this time the proposed action would be to renew the grazing permit without any changes to the terms and conditions, however changes to the terms and conditions of the permit may be proposed, depending on the evaluation of the range monitoring data.

These allotments were last inventoried for noxious weeds in 2012. The Cottonwood Allotment currently has no documented infestations of noxious weeds. The following species are found within the boundaries of the Scotty Meadows Allotment: Bull thistle (*Cirsium vulgare*), Hoary cress (*Lepidium draba*), Tall whitetop (*Lepidium latifolium*), and Salt cedar (*Tamarix spp*). The following species are found along roads and drainages leading to both allotments: Russian knapweed (*Acroptilon repens*), musk thistle (*Carduus nutans*), spotted knapweed (*Centaurea stoebe*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), hoary cress, Scotch thistle (*Onopordum acanthium*), salt cedar and bull thistle. While not officially documented the following non-native invasive weeds probably occur in or around the allotments: cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Russian olive (*Elaeagnus angustifolia*), halogeton (*Halogeton glomeratus*), Horehound (*Marrubium vulgare*), and Russian thistle (*Salsola kali*).

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

For this project, the factor rates as Moderate (5) at the present time. The proposed action could increase the populations of the noxious and invasive weeds already within the allotments and could aid in the introduction of weeds from surrounding areas. Within the allotments, water haul and salt block sites are of particular concern of new weed infestations due to the concentration of livestock around those sites and the associated increase in ground disturbance.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This project rates as High (8) at the present time. Livestock grazing does not usually impact the spread of salt cedar. Hoary cress is usually spread by seed, which can be spread by livestock. The proposed action includes utilization levels of native vegetation and will help prevent the spread of noxious and invasive weeds within the allotments. Within the allotments, watering and salting locations are of particular concern for new weed infestations due to the concentration of livestock around those sites and the associated increase in ground disturbance. If new weed infestations establish within the allotments, this could have an adverse impact on those native plant communities. Also, any increase of cheatgrass could alter the fire regime in the area. By following the stipulations listed in the Weed Risk Assessment, affects by weeds should be minimized.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

For this project, the Risk Rating is Moderate (40). This indicates that the project can proceed as planned as long as the following measures are followed:

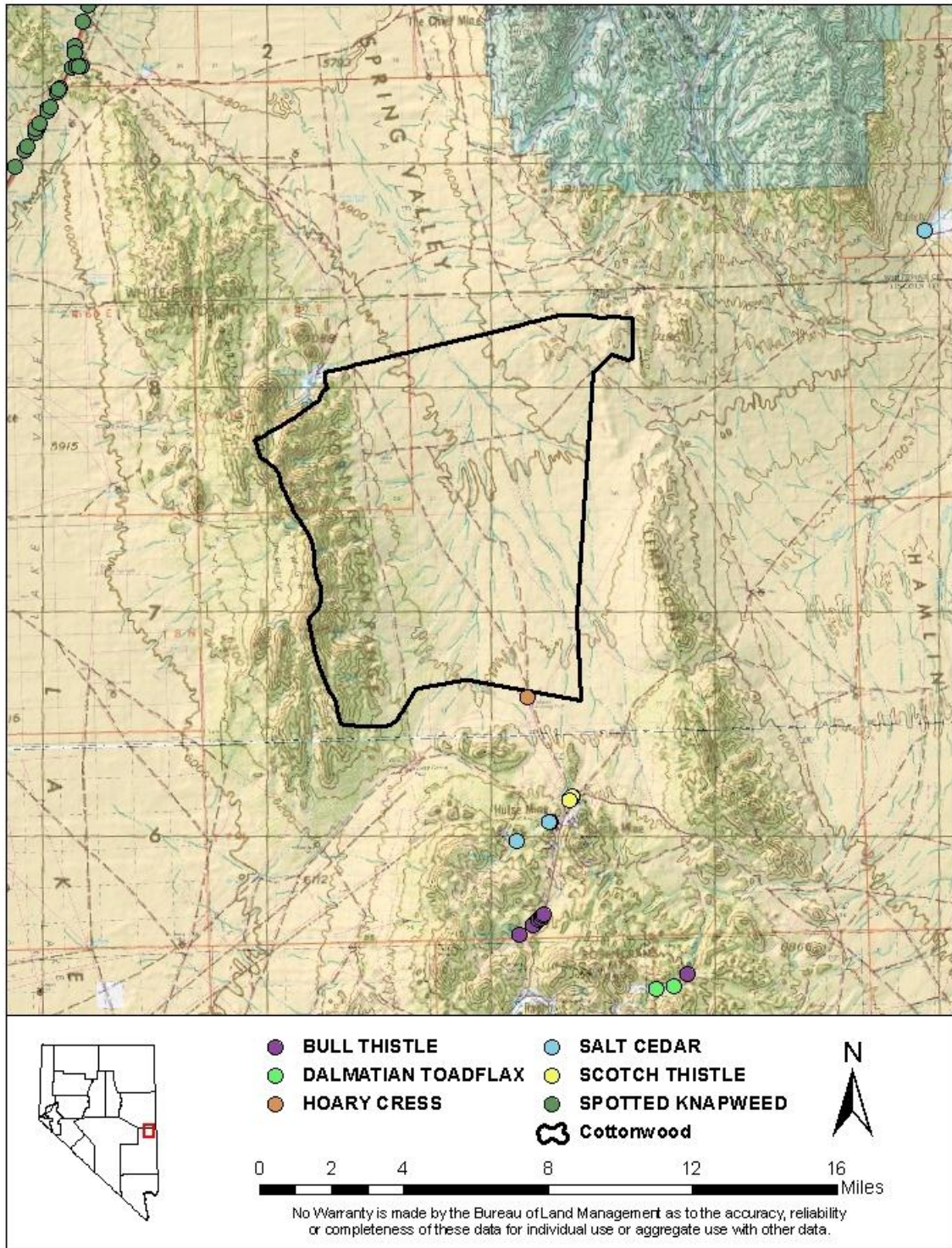
- Prior to entering public lands, the BLM will provide information regarding noxious weed management and identification to the permit holders affiliated with the project. The importance of preventing the spread of weeds to un-infested areas, and importance of controlling existing populations of weeds will be explained.
- The range specialist for the allotments will include weed detection into project compliance inspection activities. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- To eliminate the introduction of noxious weed seeds, roots, or rhizomes from hay, straw, or other organic products used for feed or bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely Field Office.
- Any newly established populations of noxious/invasive weeds discovered will be communicated to the Ely District Noxious and Invasive Weeds Coordinator for treatment.

Reviewed by: /s/Chris McVicars
Chris McVicars
Noxious & Invasive Weeds Coordinator

1/2/2013
Date

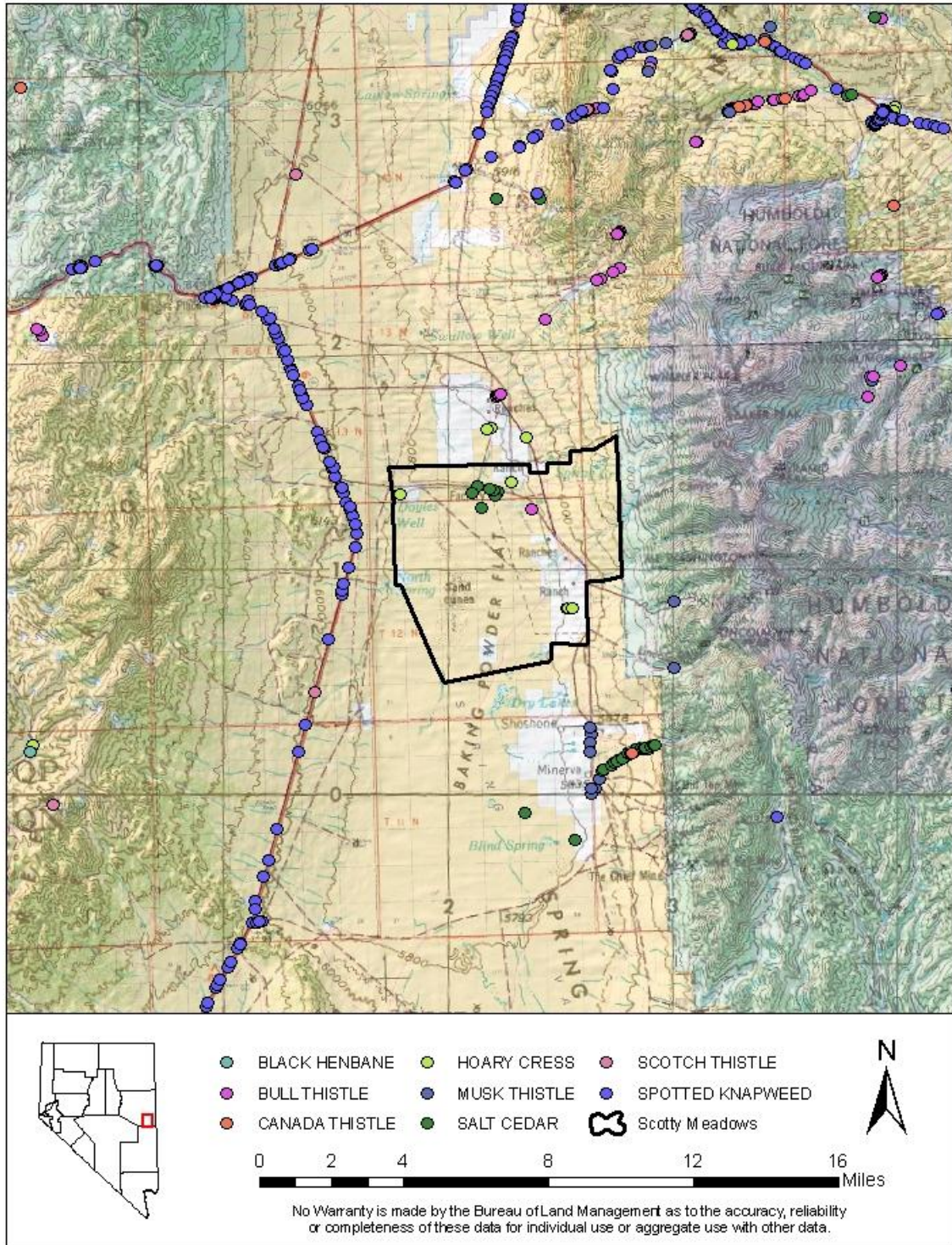
Cottonwood Allotment Term Permit Renewal

Documented Noxious & Invasive Weed Infestations



Map created 1/2/2013 by the EYDO ESR staff.

Scotty Meadows Allotment Term Permit Renewal Documented Noxious & Invasive Weed Infestations



Map created 1/2/2013 by the EYDO ESR staff.

